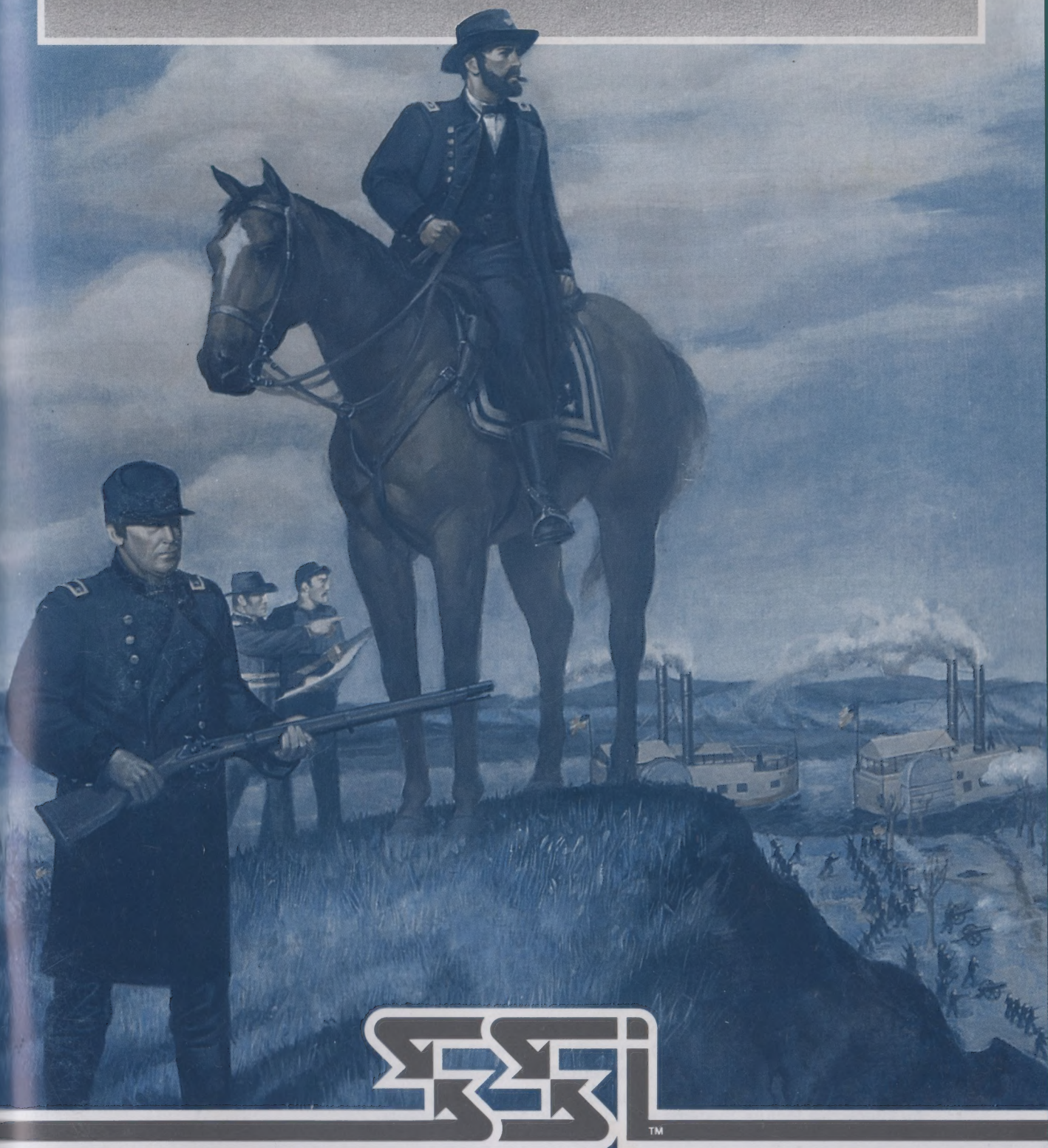


SHILOH™

GRANT'S TRIAL IN THE WEST



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QUICK START RULES FOR THE BASIC GAME

1.0 START UP

These rules allow the player to quickly get into a simple and straightforward game with a minimum of rules reading. Those of you who wish more complexity and realism are invited to play the INTERMEDIATE and ADVANCED games.

1.1 Starting the Game (C-64)

To begin the game, insert the game disk and type `LOAD ""`, `8` and press RETURN. When READY appears, type `RUN` and press RETURN.

If using a joystick, connect it to port 2.

1.2 Starting the Game (Atari)

Remove all cartridges from your computer. Boot-up the front side of the disk (800 XL and 130 XE owners will have to hold down the OPTION key when they turn on their computer to boot). After selecting the starting values for your game, you will be instructed to insert the Game Side of your disk.

If using a joystick, connect it to the #1 port.

1.3 Starting the Game (Apple)

To begin the game, boot your game disk with the front side up and the game will start automatically. If you are using an Apple with a CAPS LOCK key, keep the CAPS LOCK key down throughout the game. If you have a joystick attached, the first menu you see asks whether you wish to use it for inputting your commands. Whether or not you use the joystick, you will then see a menu which prompts you to indicate if you are using an accelerator board, a Speed Demon, an Apple II GS, or a system with no speed up board. Press the number next to the choice that is correct for your system.

If you are using a joystick, you must move the joystick to the left to go up all menus and to the right to go down all menus. You will also be able, before beginning, to determine where to get the best readings from your joystick. You may

have to move the joystick to the lower left or right to have the Apple read a "down" command.

NOTE: Older versions of the "Speed Demon" that do not contain the dip switches may not work properly with this game.

1.4 Starting the Game (IBM)

To begin the game, remove the BASIC cartridge (if using the IBM JR) and insert your 2.0 to 3.2 DOS disk in the drive. Saving a game in progress requires a formatted disk. It would be advisable to format one before you boot up the game. Turn on the computer system. Press ENTER until you see the ready ">". Insert your game diskette. Type `START`, press ENTER, and the game will boot. The IBM version has additional menus that allow you to choose the 10-key option (use the numeric keypad for movement where pressing "8" moves north instead of the standard "1"), adjust the screen to the right or left, and change the colors. On these menus, simply press the key that corresponds to the desired option. To use the tutorial, choose the standard compass option (#1: non-ten key option). For your convenience, this disk contains no copy protection. This allows you to make a back-up copy of the game disk and facilitates transferring the game disk to a hard drive system.

1.5 Main Menu

Once passed the title page and demo selection, you will see a menu with a list of options. At a later time you may wish to use these menu options. (See 2.1 of the INTERMEDIATE and ADVANCED Game rules.) IBM users are given additional menus concerning screen margins, numeric pad (choose option #1 for tutorial), and color. For Quick Start purposes, leave the default selections and press the RETURN key. Joystick users should select option "o" for exit.

A series of displays showing casualties for men and guns will be presented on the

screen one by one. Press RETURN to continue. You will then be asked if you want sound in the game. Press Y for yes and N for no. You will be asked to set the delay loop for displayed messages for this turn. Set this at 6 if you have a speed board and 4 if you do not.

NOTE: The shorter the delay loop, the less time messages will remain on the screen. If using a joystick, refer now to Section 3.0 for a tutorial and command explanation.

1.6 Getting Started: A Tutorial for Keyboard Commands

After setting the time for the delay loop, the program will go through the beginning phases of the first game turn until it reaches the Confederate Operation Phase #1.

The map on the screen has a white square exactly in the middle. At the bottom of the screen, you see lines of text which indicate the phase, time, and day among other things. You are now in what is called the Cursor Menu (you may wish to read section 2.1).

Looking at the text on the bottom, you will notice "X,Y:20,25" on the last line. This indicates the column and row on the map where the white square (the cursor) is currently situated. Move the cursor and these numbers will change.

Press the "8" key seven times to move the cursor to 13,18. Press the "W" key. The Confederate Objective squares (see Section 8.1) that are on the screen are highlighted. Now press any other key. A Union Objective square is highlighted at the bottom left of the screen. Press any other key to return to the normal Cursor Menu.

You move the cursor around the map by pressing the keys "1"–"8". You will notice in the lower right-hand corner of the screen, the numbers 1–8 arranged in a box. This serves as a compass for cursor movement. Pressing "1" moves the cursor one square directly up (north). Pressing "2" moves it one northeast and so on.

Move the cursor to location 5,25 and press the "V" key. Every square that can be seen from this location is highlighted. Press any key to return.

Press the "T" key. You will notice that the figures or units on the map will disap-

pear revealing the nature of the terrain beneath them. Press any key to continue.

Move the cursor to 15,22 and press the "0" (zero) key. You will notice that the map centers itself on the cursor location.

Press the "O" key and the map will "zoom-out" to the strategic map. You will notice that all keyboard functions are active. You can play the game on either map. Scroll around the map with the cursor and then press "O" to "zoom-in" to the tactical map.

Move the cursor to 9,25 and press the SPACE BAR. The Confederate unit there will be accessed. You are now in the Command Menu (section 2.2) with the unit information for SHAVER on the screen (you may wish to read section 2.3).

Press "1" twice (with a pause in between the two 1's) and you will see the unit move two squares up. Now press "3" once and the unit will move one square to the right. With your last move, a Union infantry unit that was hidden pops up next to the Confederate. Moving next to hidden units will cause them to appear (You may wish to read section 8.3 of the Intermediate/Advanced rules to learn more about hidden units and line of sight.). Press "F" and the target menu will appear. This menu allows you to target an enemy unit. Press "V" and you will see all the squares you may fire at highlighted. Press any key to return to the target menu. Move the cursor by pressing "2". You are now over a Union unit. Press "T" to target it. You will now return to the Command Menu for the unit SHAVER. Notice that the FIRE display shows 11,22, the square of the target unit. Press the "N" key and you will access the next unit in the order of battle sequence (the order that units are listed in the back of this rule booklet). Press "Q" to exit that unit and to return to the Cursor Menu.

Press "G" and you will be prompted to enter a unit number. Press "0" and then RETURN. The cursor will move to unit number 0, RUSSEL, and access it into the Command Menu. Press "Q" to quit the unit and return to the Cursor Menu.

Move the cursor to 9,28 and press the SPACE BAR. Move GLADDEN east along the road by pressing "3, 3, 3, and 3". Press the "N" key and move CHALMERS along

the road. By pressing "3, 3, 1, and 3". Instead of pressing "N" at the end of the Chalmers' move, press "Q" to return to the Cursor Menu.

Press "Z" and the cursor returns to the last square from which you accessed a unit with the SPACE BAR. Move the cursor to 5,27 and press the SPACE BAR to access SWETT ART. Move the unit up the road by pressing "1, 1, 1, 1, 3, 3, 1, and 3". At the end of the move press, "Z". You will see the unit move itself back to its original square. (If in the process of moving you uncover hidden units, you will lose 4 operation points when you press the "Z" key.) This is handy when you make a mistake and wish to "take back" a move and move a unit somewhere else. Press the "Q" key to return to the Cursor Menu.

You are now ready to enter the Combat Phase. During the combat phase you should see the artillery fire first and then the infantry. Please note that even those units you didn't target for will fire on their own if they can.

You may fight hand to hand (melee) if you:

- are next to the enemy
- have targeted that enemy for fire
- have pressed "M" in the Command Menu for that unit
- and have enough operation points to do so (see section 2.4 and 2.8 and also look at the Operation Costs table).

If you were actually playing a game, you would press "C" and then "Y" to enter the Combat Phase.

After the Combat Phase, you are given the opportunity to save the game by pressing "Y". Press "N" and the game will enter the next Operations Phase for the other player. When the 2nd Combat Phase is completed, the game will display up-to-date losses and a new turn begins with the Command Control Phase (see Section 3.0 of the Intermediate/Advanced Game Rules for detailed information on Sequence of Play).

2.0 OPERATION PHASE

During this phase you are allowed to move and plot melee combat for all your troops. Most actions require you to spend operation points (see Operation Costs Table).

2.1 Keyboard Cursor Menu

You are using the Cursor Menu when you first enter the Operation Phase. You return to the Cursor Menu from the Command Menu by pressing the "Q" key. When in the Cursor Menu, you may execute the commands as shown below. An abbreviated version of this menu will be displayed below the game map along with the day, phase number, and time of day.

- (0) = Centers the map at the cursor.
("5" for the optional IBM key pad.)
- (1-8) = Moves the cursor in the desired direction according to the compass on the lower right hand side of the display. ("1-9" for the optional IBM key pads)
- (C)ombat = Takes you to the Combat Phase. Press this key when you are finished moving and giving orders to all your units.
- (G)et unit = Upon pressing this key, you will be prompted to input a number corresponding to one of your units (see Order of Battle). The cursor will go to that unit and access it, putting it into the Command Menu (see below).
- (O)ther map = Toggles between the tactical and strategic maps.
- (SPACE BAR) = Picks up the unit under the cursor to allow you to give it commands. If two or more units are in the square, you will pick up the first unit. You are now in the Command Menu (see below) for that unit.
- (T)errain = Removes unit shapes from the map so you can see the terrain underneath.
- (V)iew = Highlights all the squares that a unit could see from that square.
- (W) = Highlights all Confederate objective squares on screen when pressed. Pressing any key will then highlight all Union objective squares currently on screen. Pressing any key will then return to the Cursor Menu.

(Z) = Takes you back to the last square where you accessed a unit.

2.2 Keyboard Command Menu

You enter the Command Menu from the Cursor Menu when you pick up a unit by either pressing the Space Bar when the cursor is located over a unit or by pressing the "G" key and then entering a unit number. The Command Menu is used to move and give orders to your units. The commands you may select are listed below:

- (0) = Centers map on the unit. ("5" for optional IBM key pad.)
- (1-8) = Moves the unit in desired direction as indicated by the compass. ("1-9" for optional IBM key pad.)
- (A)dvance = Sets the unit to advance into an adjacent square vacated by an enemy retreat.
- (F)ire = Takes you to the Target Menu which allows you to set a priority fire square.
- (H)elp = Displays list of commands available in this menu.
- (M)elee = Plots the units to MELEE combat the unit it fires at.
- (N)ext = Goes to the next unit on the map in promotion order (this is the order the units are listed in the Order of Battle).
- (O)ther map = Toggles between the tactical and strategic maps.
- (Q)uit = Puts down the unit and takes you back to the Cursor Menu.
- (T)errain = Removes units on the map to view the terrain underneath.
- (U)nder = Picks up the next unit in the square.
- (V)iew = Allows you to view all squares that you can fire into in a 360 degree arc.
- (Z) = Abort the actions of the unit you have currently picked up. The unit is returned to its original square.

2.3 Unit Information (Keyboard)

When you pick up a unit, the unit statistics are displayed beneath the map as shown below:

```
CONFED ANDERSON INF 1634 MEN
MSK EFF:40/50 FT:10 MORALE:30      8  1  2
NONRTD OP:10 MELEE:N ADV: N       7    3
LIGHT WOODS (2) X,Y2,26 FIRE:3,26  6  5  4
```

The above display shows that the Confederate unit, ANDERSON is INFANTRY with 1634 men. Its men are armed with MUSKETS, have an EFFICIENCY of 40 out of the 50 it began with, a FATIGUE of 10, and MORALE of 30. Its status is NONROUTED. It has 10 OPERATION POINTS left and does not wish to MELEE or ADVANCE. The unit is on a LIGHT WOODS (see Menu 2.3) square with an elevation of (2), is located on square 2,26, and has plotted fire on square 3,26. The direction compass is located on the right hand side.

Units have different shapes on the map according to the type of unit (infantry, cavalry, artillery, or gunboat) and the stacking. See Figure 2.3 in the column to the right.

2.4 Moving a Unit with the Keyboard

When you have picked up a unit, you may move it by pressing the number keys. The unit will move in the direction the number you press lies from the center of the cursor compasses below. EXAMPLE: when using the standard movement compass (below left), pressing the "1" key will move the unit up. When using the IBM cursor compass (below right) pressing "1" will move the unit down and to the left.

```
8 1 2      7 8 9      (option for IBM)
7   3      4 5 6      5 = Centers cursor
6 5 4      1 2 3      on map.
```

Moving costs you operation points and fatigue, according to the Operation and Fatigue Costs Chart. Your units receive 9 to 15 operation points each OPERATION PHASE as determined by their morale as modified by a random number. If you don't use up all your operation points, left over operation points will improve fatigue and efficiency on a 1 to 1 basis unless

CONFEDERATE		UNION
	"One" Infantry.	
	"Two" Infantry	
	Artillery	
	Artillery plus "One" Infantry	
	Artillery plus "Two" Infantry	
	Routed	
	Cavalry	
	Gunboat	

Figure 2.3 Unit Icons

your unit is next to an enemy unit. A unit adjacent to an enemy recovers 1 point of fatigue and efficiency for every 2 operation points remaining.

Units may only enter a square if they have enough OP to pay the movement cost. The exception to this is that units are always permitted to move one square if that is their only movement that phase (exception: ZOC to ZOC. see rule 2.6). Units can't stop in a square if that would cause it to have too many units (see Stacking 2.5). *NOTE: The game begins with the*

Confederates receiving a bonus turn in which all Confederate units receive 13 OP.

If you move an artillery unit, it may not fire until the next phase. Movement costs during the Night Turn are doubled.

During the second phase of the night turn, Confederate units have special movement capabilities as long as they do not enter an enemy ZOC. They can move a maximum of 16 squares.

2.5 Stacking

A square may have one or two infantry or cavalry units. In addition, it may have one artillery unit. Cavalry may overstack while moving, but may not end the turn overstacked. Artillery may never enter a square containing another artillery unit.

2.6 Zones of Control

The eight squares surrounding a unit are defined as its Zone of Control (ZOC). This Zone of Control costs enemy units 2 extra operation points to enter or exit. Units retreating during combat lose more men if forced to retreat into an enemy Zone of Control or rout out of an enemy ZOC. Units may only move from enemy ZOC to ZOC if the square moved into is occupied by a friendly unit. Routed units can never enter an enemy ZOC.

2.7 Fire Plots

A unit will fire at the closest enemy unit it can see unless you have set a priority fire square. If you target a square two or more squares away, your priority fire will be reset to an adjacent enemy unit (which may have since moved next to the firing unit). To set priority fire, press "F" in the Command Menu. This will take you to the Target Menu and allows you to move the cursor to a target square and press "T" to set it as the priority target. In the Target Menu, you may also press "V" to view your line of fire or "E" to exit the menu (in which case the computer will find a target for you just before combat). Pressing "N" will exit and plot "No Fire" in which case the unit will only fire at an enemy unit next to it.

2.8 Melee Plot

If you wish to plot a unit to engage in melee (hand-to-hand) combat, press "M" in the Command Menu. The unit will

melee the enemy unit it fired at if it is adjacent to the enemy unit and has enough operation points. If not, it will not melee.

2.9 Unit Activation

You may not move units until they are activated. Many Union units and some Confederate ones begin the game inactive.

2.10 Untried Units

Units begin the game with their Efficiency and Morale unknown. This is shown by the ? under these areas. A unit's Morale and Efficiency will be determined when they are first engaged in combat. Unit Efficiency is identified as either "G" or "R" prior to their first combat. "R" stand for Regular and "G" stands for Green. Regular units will generally have higher morale and efficiency than Green ones.

3.0 THE JOYSTICK

The joystick may be used to move and give other orders to your units. This joystick option is available in the Basic Game only. It may not be used in the Intermediate or Advanced Games.

The sections below explain those operations that are exclusive to the joystick. They do not explain other operations. You will have to read the others sections of this rulebook, excluding the Keyboard Tutorial (Section 1.6) and Sections 2.1 through 2.10, for the complete rules.

3.1 A Joystick Tutorial: Getting Started

After setting the time for the delay loop, the program will go through the beginning phases of the first game turn until it reaches the Confederate Operation Phase #1.

The map on the screen has a white square exactly in the middle. At the bottom of the screen, you see lines of text which indicate the phase, time, and day among other things. You are now in what is called the Cursor Menu.

Looking at the text on the bottom, you will notice "X,Y:20,25" on the last line. This indicates the column and row on the map where the white square (the cursor) is currently situated. If you move the cursor, these numbers will change.

You will notice that the text below the map appears as shown below:

```
4-6-1862 8:00 AM CONFED PHASE 1      8 1 2
GET UNIT EXIT VIEW OBJ COMBAT      7 0 3
GO TO UNIT MAP MOVE CLEAR ABORT    6 5 4
LIGHT WOODS (2) X,Y 20,25
```

You are now in the joystick Cursor Menu (you may wish to read Section 3.2).

The menu option "MOVE" should be highlighted. You may now use the joystick to move the cursor. The joystick can be used to move the cursor up (direction "1"), right (direction "3"), down (direction "5"), or left (direction "7"). *NOTE: Depending on the joystick, Apple users may have to move the joystick down and to the right or left to move the cursor in direction 5.*

Move the joystick to the left (the direction the "7" in the movement compass lies from the "0") and the "7" in the cursor compass will be highlighted. Hold the joystick in this position until the cursor moves to square 13,25. Now move the joystick up (direction "1") and hold it there until the cursor is over square 13, 18.

Release the joystick. When none of the numbers "1-8" are highlighted, press the joystick button. When the "0" stops blinking, move the joystick to highlight "OBJ" and press the joystick button. The Confederate Objective squares (see Section 8.1) that are on the screen will be highlighted. Press the joystick button again and a Union Objective square that is on the screen is highlighted. Press the joystick button until the "0" blinks. *NOTE: If you press the button too long, you may pass by the blinking 0 to another option.*

Use the joystick to move the cursor until the square 5,25 is shown at the bottom of the screen. Press the joystick button until the "0" stops blinking. Move the joystick to highlight "VIEW" and press the button. Every square that can be seen from this location is highlighted. Press the button to continue.

Move the joystick to highlight "CLEAR" and press the button. You will notice that the figures or units on the map will disappear revealing the nature of the terrain beneath them. Press the button to continue.

Press the button again. Move the cursor to 15,22. Press the joystick button. Use the joystick to highlight "MAP" and press the button. The map will "zoom-out" to the strategic map. You will notice that all joystick functions are active. You can play the game on either map. Scroll around the map with the cursor and then use "MAP" to "zoom-in" to the tactical map.

Move the cursor to 9,25. Press the button and "GET UNIT" becomes highlighted. Press the button again. The Confederate unit there will be accessed. You are now in the Access Menu (Section 3.3) with the unit information for SHAVER on the screen.

Once a unit is accessed, you may move it by using the joystick and button. To move a unit, use the joystick to move the cursor to where you want your unit to go and press the button. The unit will move in a fairly straight line to that square. If there is a road between a unit's current square and the one it is to move to, the unit will move along the road as much as possible. Because the unit will move in a fairly straight line, it may be necessary to give a unit a series of orders (as shown below) to move it to a desired square.

Move SHAVER in direction "1" for two squares and then one square in direction "3". By giving two joystick commands to reach this square, instead of one, you were able to choose your route of approach. Had you moved the cursor over the end square the first time, the computer would have chosen the route without regard to movement costs or the presence of enemy units.

With your last move, a Union infantry unit that was hidden pops up next to the Confederate. Moving next to hidden units will cause them to appear (You may wish to read section 8.3 of the Intermediate/Advanced rules to learn more about hidden units and line of sight.).

Press the button (while "0" is highlighted) and the Command Menu will appear. Move the joystick to highlight "FIRE" press the button, and the Target Menu will appear. This menu allows you to target an enemy unit. Highlight "VIEW LOS" and press the button and you will see all the squares you may fire at high-

lighted. Press the button to return to the Target Menu. Highlight "TARGET SQUARE" and press the button. Use the joystick to move the cursor to square 11,22 (over the Union unit) and press the button. You are returned to the Command Menu. Press the button and you will return to the Access Menu. You will see 11,22 next to the word FIRE at the bottom of the screen. This shows that SHAVER has been ordered to fire into square 11,22.

Press the button to return to the Command Menu. Highlight "NEXT" and press the button. You access the next unit in the order of battle sequence (the order that units are listed in the back of this rule-book). Press the button to go to the Command Menu and highlight "QUIT". Press the button and you exit that unit and return to the Cursor Menu.

Press the button. Highlight "GO TO UNIT" and press the button. The number "23" will appear on the screen. Move the joystick until "2" appears. Press the button. The cursor will move to unit number 2, STEWART, and access it into the Access Menu. Press the button to go to the Command Menu. Highlight "QUIT" and press the button to quit the unit and return to the Cursor Menu.

Move the cursor to 9,28 and press the button twice. Move GLADDEN east along the road by moving the cursor to square 13,28 (3,3,3, and 3) and pressing the button. Go to the Command Menu and select "NEXT". Move CHALMERS along the road to square 9, 28 (3,3,1, and 3). Notice how the unit is moved to follow the path of the road. Go to the Command Menu and select "QUIT" to return to the Cursor Menu.

Highlight "ABORT" and press the button and the cursor returns to the last square from which you accessed a unit with the "GET UNIT" command. Move the cursor to 5,27 and press the button twice to access SWETT ART. Move the unit to square 4,21. Notice how the unit moves up the road in directions "1, 1, 1, 1, 1, 7, and 1". At the end of the move, go to the Command Menu and select "ABORT". You will see the unit move it-

self back to its original square. (If in the process of moving you uncover hidden units, you will lose 4 operation points when you select "ABORT".) This is handy when you make a mistake and wish to "take back" a move and move a unit somewhere else or when the computer has moved your unit along a route you do not like. Select "QUIT" to return to the Cursor Menu.

You are now ready to enter the Combat Phase. During the combat phase you should see the artillery fire first and then the infantry. Please note that even those units you didn't target for will fire on their own if they can.

You may fight hand to hand (melee) if you:

- are next to the enemy
- have targeted that enemy for fire
- have pressed "M" in the Command Menu for that unit
- and have enough operation points to do so (see section 2.4 and 2.8 and also look at the Operation Costs table).

If you were actually playing a game, you would select "COMBAT" from the Cursor Menu and then "YES" to enter the Combat Phase. You may use the joystick to toggle between "YES" and "NO" and then press the button to make your selection.

After the Combat Phase, you are given the opportunity to save the game by selecting "YES". Select "NO" and the game will enter the next Operations Phase for the other player. When the second Combat Phase is completed, the game will display up-to-date losses and a new turn begins with the Command Control Phase (see Section 3.0 of the Intermediate/Advanced Game Rules for detailed information on Sequence of Play).

3.2 Joystick Cursor Menu

You are using the Joystick Cursor Menu when press "J" from the Keyboard Cursor Menu. You return to the Joystick Cursor Menu from the Joystick Command Menu by selecting "QUIT". When in the Joystick Cursor Menu, you may execute (select) the commands shown below by moving the joystick to highlight them and then pressing the joystick button. An abbreviated version of this menu will be dis-

played below the game map along with the day, phase number, and time of day.

ABORT = Takes you back to the last square where you accessed a unit.

CLEAR = Removes unit shapes from the map so you can see the terrain underneath.

COMBAT = Takes you to the Combat Phase. Press this key when you are finished moving and giving orders to all your units.

EXIT = Exits the Joystick Cursor Menu and returns you to the Keyboard Cursor Menu.

GET UNIT = Picks up the unit under the cursor to allow you to give it commands. If two or more units are in the square, you will pick up the first unit. You are now in the Access Menu (see below) for that unit.

GO TO UNIT = Upon selecting this option, the number 23 will appear on the screen. Use the joystick to step this number up or down to input a number corresponding to one of your units (see Order of Battle). The cursor will go to that unit and access it, putting it into the Access Menu (see below).

MAP = Toggles between the tactical and strategic maps.

MOVE = Moves the cursor in the direction highlighted on the compass on the lower right hand side of the display. Once a direction is highlighted, press the joystick button to move the cursor.

OBJ = Highlights all Confederate objective squares on screen when pressed. Pressing the joystick button will then highlight all Union objective squares currently on screen. Pressing the button will then return to the Cursor Menu.

VIEW = Highlights all the squares that a unit could see from that square.

3.3 Joystick Access Menu and Unit Movement

You enter the Access Menu from the Cursor Menu when you access a unit (GET UNIT or GO TO UNIT). You enter the Access Menu from the Command Menu when RETURN is selected.

When in the Access Menu, information on the accessed unit is displayed BENEATH THE MAP as shown below:

CONFED SHAVER INF 2360 MEN	IBM
MSK EFF:56/66 FAT:10 MORALE:46	8 1 2 7 8 9
NONRTD OP:13 MELEE:N ADVANCE:Y	7 0 3 4 5 6
ROAD (2) X,Y:10,23 NO PLOT	6 5 4 1 2 3

The text identifies the unit as the Confederate brigade commanded by Shaver. It is an infantry unit and has 2360 men. The unit is armed with muskets. Its current efficiency is 56 out of a maximum possible efficiency of 66. The unit has a fatigue of 10 and its current morale is 46 (Morale equals Current Efficiency minus Fatigue). It is on a level 2 road square at location 10,23. It has no fire plotted. The movement compasses are shown to the right of the display. The IBM compass will appear instead of the standard compass only if you are using an IBM compatible system and have chosen this movement option.

The Access Menu permits you to move the accessed unit to a square by using the joystick to move the cursor to that square and then pressing the joystick button. The accessed unit will then move to the chosen square (assuming this is a legal move).

When the 0 in the middle of the Movement Compass is blinking, use the joystick button to toggle from the Access Menu to the Command Menu.

3.4 Joystick Command Menu

You enter the Command Menu from the Access Menu by pressing the joystick button at any time while the movement numbers at the bottom right of the screen are NOT highlighted. While in the Command Menu, you may select the following options by highlighting them:

ABORT = Aborts or cancels the actions of the unit you have currently accessed. The unit is returned to its original square.

ADVANCE = Pressing the button when an "N" appears next to this option will give the accessed unit orders to advance into an adjacent square that an enemy unit retreats from. Pressing the button while a "Y" appears next to the option orders the accessed unit to not advance.

FIRE = Takes you to the Target Menu which allows you to set a priority fire square.

MELEE = Plots the units to MELEE combat the unit it fires at.

NEXT = Goes to the next unit on the map in promotion order (this is the order the units are listed in the Order of Battle).

OTHER MAP = Toggles between the tactical and strategic maps.

OTHER UNIT = Picks up the next unit in the square.

QUIT = Puts down the unit and takes you back to the Cursor Menu.

RETURN = Returns you to the Access Menu.

CLEAR = Removes units on the map to view the terrain underneath.

VIEW = Allows you to view all squares that you can fire into in a 360 degree arc.

3.5 Joystick Fire Menu

This menu is entered from the Command Menu when the FIRE option is selected. Options in this menu may be selected by highlighting them and pressing the joystick button. The following options are available from this menu:

EXIT/ERASE PLOT = Selecting this option will set your unit for a NO PLOT and return you to the Command Menu. A NO PLOT means that the computer will select a target for that unit to fire at.

NO FIRE = Orders your unit not to fire. This permits the unit to rest and recover efficiency. The unit will fire if an enemy unit is adjacent to it.

TARGET SQUARE = Permits you to select a square for the accessed unit to fire into. After selecting this option, use the joystick to move the cursor over the square you want to target and again press the joystick button. This will give the accessed unit orders to fire into this square and return you to the Command Menu. *(NOTE: Your unit will only fire into the indicated square when it contains an enemy unit and if your unit has sufficient OP to fire. Units ordered to fire into a*

nonadjacent square will instead fire into an adjacent square that contains an enemy unit).

VIEW LOS = Selecting this option will cause those squares that are both within the Line Of Sight (LOS) and maximum fire range of your unit to be highlighted.

3.6 Stacking

A square may have one or two infantry or cavalry units. In addition, it may have one artillery unit. Cavalry may overstack while moving, but may not end the turn overstacked. Artillery may never enter a square containing another artillery unit.

3.7 Zones of Control

The eight squares surrounding a unit are defined as its Zone of Control (ZOC). This Zone of Control costs enemy units 2 extra operation points to enter or exit. Units retreating during combat lose more men if forced to retreat into an enemy Zone of Control or rout out of an enemy ZOC. Units may only move from enemy ZOC to ZOC if the square moved into is occupied by a friendly unit.

3.8 Melee Plot

If you wish to plot a unit to engage in melee (hand-to-hand) combat, select Melee in the Command Menu. The unit will melee the enemy unit it fired at if it is adjacent to the enemy unit and has enough operation points. If not, it will not melee.

3.9 Unit Activation

You may not move units until they are activated. Many Union units and some Confederate ones begin the game inactive.

3.10 Untried Units

Units begin the game with their Efficiency and Morale unknown. This is shown by the ? under these areas. A unit's Morale and Efficiency will be determined when they are first engaged in combat. Unit Efficiency is identified as either "G" or "R" prior to their first combat. "R" stands for Regular and "G" stands for Green. Regular units will generally have higher morale and efficiency than Green ones.

4.0 COMBAT PHASES

During this phase, all fire phases and melees are resolved. Casualties are taken.

4.1 Fire and Melee Phases

There are a total of five fire phases, two retreat/advance phases, and one melee phase during a combat phase as outlined below:

- Defensive Artillery Fire Phase
- Offensive Artillery Fire Phase
- Defensive Fire Phase
- Offensive Fire Phase
- Retreat Phase/Advance Phase
- Defensive Melee Fire Phase
- Melee Phase
- Retreat Phase/Advance Phase

Units will fire if they have a line of sight and are within range of the target unit. Ranges of weapons are found in the Weapon Range/Casualty Table. All fire phases are automatically resolved by the computer.

You will see the names of the firing units and their targets on the screen along with their casualties. Numbers in parentheses refer to artillery guns lost. Units that will retreat or rout during the Retreat Phase will be so indicated by a message.

4.2 Rout and Rally

Infantry and cavalry units will change to the rout shape and retreat when their morale breaks (artillery never routs). There is a chance of breaking when morale is less than 15. Units with a morale below 4 always rout. Units having less than 81 men will automatically rout when they take losses. *EXCEPTION: A unit which loses less than 10 men will not rout even if its morale drops below 4 as a result.*

Everytime a unit routs, any other units stacked in the square with it lose 15 points from their efficiency. Units stacked in a square a routed unit retreats into lose 8 efficiency points. *NOTE: A unit's efficiency will never drop below 20.*

To have a chance to rally, a unit must have a minimum current morale of 31 and a minimum current efficiency of 40. Therefore, units which start the game with an efficiency that is less than 40 will never recover from a rout (current efficiency can never exceed original efficiency).

5.0 FATIGUE/EFFICIENCY

A unit's fatigue rating is a measure of how tired it is. It gains fatigue when it moves and loses efficiency when it takes losses. See the Fatigue Gain/Efficiency Loss Table for details. Fatigue and efficiency have a semi-proportional effect on fire strength (see Modifier Tables at back). Efficiency minus fatigue equals morale. Since gaining fatigue lowers morale, you may raise morale by losing fatigue. You lose fatigue/recover efficiency by having left over operation points in the middle and at the end of a turn. One operation point wipes out one fatigue point (two operation points wipe out one fatigue point if next to an enemy unit). A unit will recover 70% of its lost efficiency during the End of the Day Phase. Also during this phase, units lose their fatigue completely.

6.0 REINFORCEMENTS

Each side receives reinforcements according to the Order of Battle (see Appendix). The Union will not receive any reinforcements from Buell's Corps while Pittsburg Landing is in a Confederate ZOC. See 6.0 in the advanced rules for how this works. If an entry square is occupied by an enemy unit, the reinforcing units will be delayed until the entry square is free of enemy units. *NOTE: The Confederate player loses efficiency if he fails to take Pittsburg Landing by the end of the first day of battle.*

7.0 END OF THE DAY PHASE

This phase occurs after the night turn. During this phase, units lose all fatigue. In addition, units recover efficiency equal to half of the difference between their starting efficiency and current efficiency. Units will also automatically fortify during this phase from 0 to 2 fortification points based on fatigue, efficiency, and enemy ZOC. Units with a fatigue of 40 or more will not fortify. Units with a fatigue of greater than 20 and in an enemy ZOC will not fortify.

During the second phase of the night turn, Confederate units have special movement capabilities. As long as they do

not enter an enemy ZOC, they can move a maximum of 16 squares.

8.0 HOW TO WIN

Players receive victory points. A score is calculated by subtracting the Confederate points from the Union. You may examine the map and look at the units of both sides when the game has ended.

8.1 Victory Points

Players receive points based on enemy casualties according to the schedule below:

- 1 pt per Infantryman/Artilleryman lost
- 1.5 pts per captured Infantryman/Artilleryman
- 2 pts per Cavalryman lost
- 3 pts per captured Cavalryman
- 100 pts per Artillery Gun lost
- 150 pts per captured Artillery Gun

CONFEDERATE OBJECTIVE SQUARES

10,18 = 1000 pts
15, 6 = 1000 pts
20,19 = 1000 pts
20,13 = 1000 pts
16,14 = 1000 pts
25,8 = 3000 pts
20,8 = 1000 pts
13,10 = 1000 pts
25, 7 = 3000 pts

UNION OBJECTIVE SQUARES

5, 23 = 1000 pts
5, 29 = 3000 pts
14,27 = 1000 pts

To receive points for an objective square, you must control it. Control is determined during Reinforcement Phases. To control an objective square, you must have 3000 men in or adjacent to it without any enemy units being in or adjacent to it. It is not necessary to keep units in or next to a square to maintain control. However, control is lost if any enemy unit, regardless of size, is in or adjacent to the objective square during a Reinforcement Phase.

8.2 Victory Levels

At the beginning of each turn, a display will appear on the screen showing victory levels and the scores needed to attain those levels. ■

INTERMEDIATE AND ADVANCED GAME RULES

1.0 INTRODUCTION

SHILOH: GRANT'S TRIAL IN THE WEST is a grand-tactical level game of the first large battle fought in the Western Theatre of the Civil War. This battle was the South's best chance to wrest control of the West from the North. The Confederates achieved near total surprise and nearly wrecked the careers (and army) of the famous Union generals Ulysses S. Grant and William T. Sherman.

1.1 Overview of the Game

Each game turn represents one-and-one-half hours of real time. The execution of a game turn includes rally, movement, mode changes, facing changes, and resolution of artillery fire, offensive fire, defensive fire, melee, retreats, and advances.

1.2 Talking to the Computer

To select a routine from a menu or answer a YES/NO question, just press the desired key.

1.3 Starting the Game (Commodore 64)

To begin the game, insert the game disk and type **LOAD "*" ,8** and press **RETURN**. When **READY** appears, type **RUN** and press **RETURN**.

1.4 Starting the Game (Atari)

Remove all cartridges from your computer. Boot-up the front side of the disk (800 XL and 130 XE owners will have to hold down the **OPTION** key when they turn on their computer to boot). After selecting the starting values for your game, you will be instructed to insert the Game Side of your disk.

1.5 Starting the Game (Apple)

To begin the game, boot your game disk with the front side up and the game will start automatically. If you are using an Apple with a **CAPS LOCK** key, keep the **CAPS LOCK** key down throughout the game. The first menu you see prompts you to indicate if you are using an accelerator board, a Speed Demon, an Apple II GS, or a system with no speed up board. Press the number next to the choice that is correct for your system. *NOTE: Older versions of the "Speed Demon" that do not contain the dip switches may not work properly with this game.*

1.6 Starting the Game (IBM)

To begin the game, remove the BASIC cartridge (if using the IBM JR) and insert your 2.0 to 3.2 DOS disk in the drive. Since you need a formatted disk to save a game, you may wish to make one before you boot the game. Turn on the computer system. Press **ENTER** until you see the ready ">". Insert your game diskette. Type **START**, press **ENTER**, and the game will boot. The IBM version has additional menus that allow you to choose the 10-key option (movement compass using "8" for moving north instead of standard "1"), adjust the screen to the right or left, and select a color palette. On these menus, simply press the key that corresponds to the desired option. For your convenience, this disk contains no copy protection. This allows you to make a back-up copy of the game disk and facilitates transferring the game disk to a hard drive system. You should have a formatted disk handy to save games in progress.

1.7 Game Scale and Map

There are 15 turns in the game, each representing one-and-one-half hours from 8:00AM to 6:30AM plus the night of April 6 and 7, 1862. The map is situated on a 30 x 30 square grid. Each square repre-

1.9 Units

There are four unit types in the game: infantry, cavalry, gun boats, and artillery. Each unit is rated for manpower (and guns for artillery), efficiency, fatigue, morale, weapon type, ammo, mode, facing, operation points, command control, rout status, and disruption status. Units are represented by specific graphic shapes depending on unit type and stacking. See Figure 1.9 below. On your screen, Union symbols are blue (*EXCEPTION: gun boats are white*) and Confederate symbols are white (*Apple color version. Other versions may vary*). Note that the symbols will change shape to reflect different facings and stacking combinations.

Each unit represents a brigade (or a demibrigade if it has been divided into "A" and "B" units). A unit is named after its brigade commander with an "A" or "B" designation attached for demi (half) brigades. Divisional and corps commanders may also be attached to units. The brigade commander is assumed to be present at both A and B units of his brigade.

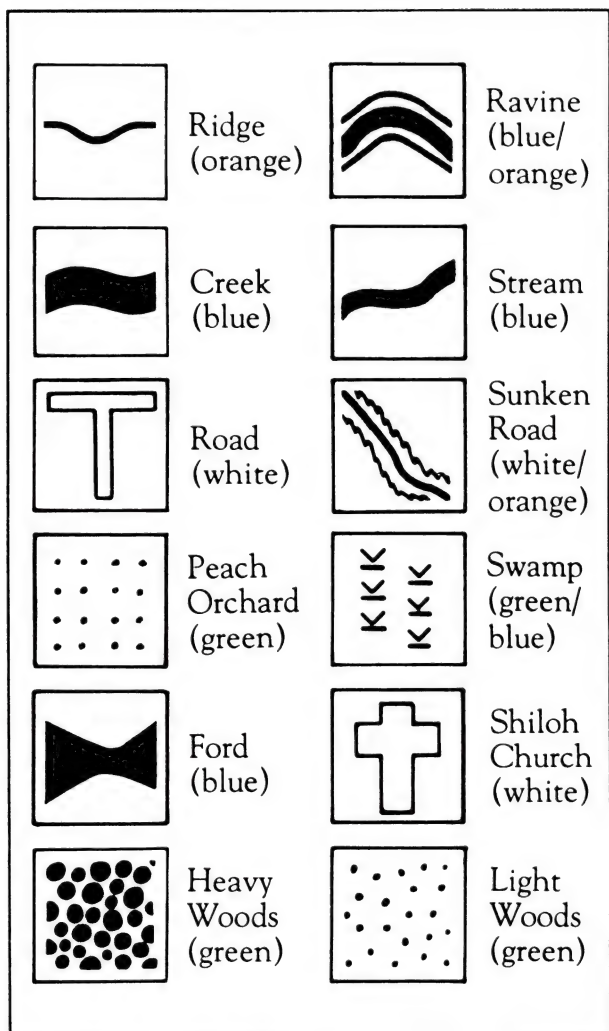


Figure 1.7 Terrain Symbols

sents 200 yards from side to side. The various terrain depicted includes clear, light woods, heavy woods, ford, ridges, roads, creeks, peach orchard, sunken road, streams, ravines, river, and bridges. Two elevations are represented by contour lines. See Figure 1.7 for terrain symbols.

1.8 Saving a Game

At the end of each combat phase, the computer will allow the player(s) to save the game in progress. You will need a separate, save game disk to store the saved game data. Players must initialize their blank disk from within the program as offered by the Save Game Menu. (IBM owners must use a previously formatted disk.) Once a game is saved, you may restart it at the point where you left off. You may not change selected options when you restart a game in progress.

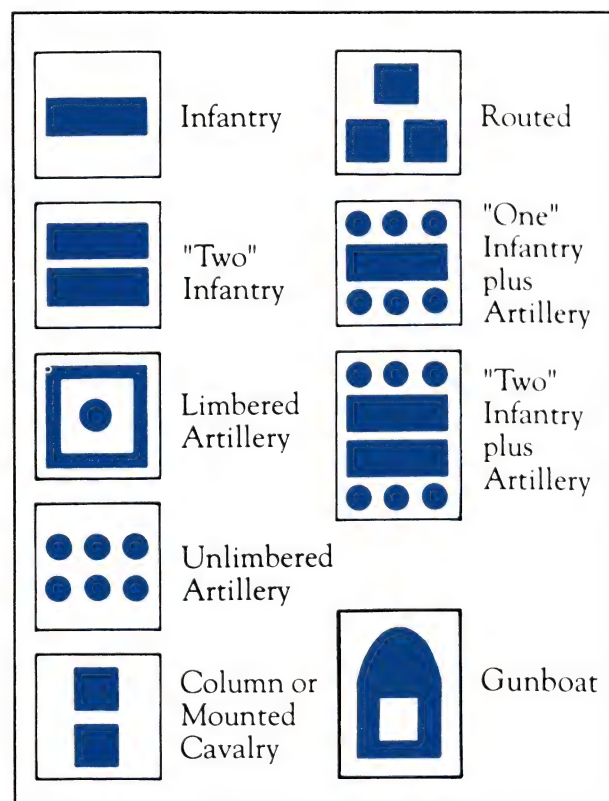


Figure 1.9 Unit Symbols

1.10 Changes from "Rebel Charge at Chickamauga"

If you have played **REBEL CHARGE AT CHICKAMAUGA**, you will find **SHILOH: GRANT'S TRIAL IN THE WEST** plays similarly. The following changes have been made.

- Units which begin the game with an effectiveness below 40 cannot be rallied. Once they rout, they remain routed for the rest of the game.
- When a unit routs inside an enemy Zone of Control (ZOC) it will lose 5% of its number to capture.
- Rout will not occur if a unit suffers less than 10 casualties.
- Gunboats can travel in river hexes which are impassible to other units.
- The cannons on gunboats are capable of indirect fire. This means that they do not have to have a line of sight to a target in order to fire on it. Pressing the "V" key while a gun boat is accessed in the Command Menu will highlight the squares into which they can fire.
- Gunboats can neither initiate melee nor be engaged in melee by an enemy unit.
- The Confederate player gets one additional operations phase at the beginning of the game. This means that the Confederate player will have two operations phases and two combat phases before the Union player gets a phase.
- Turns represent one-and-one-half hours rather than two hours.
- Untried Units. At the beginning of a battle, a player will not know a unit's morale or efficiency until after it has been engaged in combat. The player will only know if a unit is G (Green) or R (Regular). Green units are formations which had not been in battle prior to Shiloh.
- Only demibrigades receive the road movement bonus.
- The nonphasing player's units retreat first.
- During turns 2 and 3, large numbers of Confederate troops are considered to be looting the Union camps.

- There is extended movement for Confederate units during the second phase of the night turn as long as they do not enter an enemy ZOC.

- Units may not move (although they can change formation, fire, etc.) until they are activated. Many Union units and some Southern units begin the game in inactive status.

1.11 Parts Inventory

Your game should contain the following parts:

- a. Game box
- b. Rule book
- c. One 5 $\frac{1}{4}$ " game disk
- d. One map card

2.0 SET UP

SHILOH: GRANT'S TRIAL IN THE WEST is a two-sided game — Union vs. Confederate. Both sides may be played by either a human player or the computer opponent.

2.1 Determining Conditions of Play

After the title screen display and demo option, the player(s) must determine the conditions under which the game will be played from the menu below. Press "A-N" to make your choices. Press RETURN/ENTER when your choices are made and you are ready to continue. (The default settings are shown in **BOLD**).

- | | | | | | |
|----|--------------------|--------------|----------|----------|-----|
| A) | NEW GAME | SAVED GAME | | | |
| B) | UNION | HUMAN | COMPUTER | | |
| C) | CONFEDERATE | HUMAN | COMPUTER | | |
| D) | BASIC | INTERMEDIATE | ADVANCED | | |
| E) | HIDDEN UNITS | NON-HIDDEN | | | |
| F) | COLOR TV | BLACK/WHITE | | | |
| G) | ICONS | SYMBOLS | | | |
| H) | LEVEL OF PLAY | 1 | 2 | 3 | 4 5 |
| I) | UNION ARRIVAL | 1 | 2 | 3 | 4 5 |
| J) | UNION AMMO | 1 | 2 | 3 | 4 5 |
| K) | CONFED AMMO | 1 | 2 | 3 | 4 5 |
| L) | UNION EFF | 1 | 2 | 3 | 4 5 |
| M) | CONFED EFF | 1 | 2 | 3 | 4 5 |
| N) | CAMPAIGN SCENARIO | April 6-7 | | | |
| | FIRST DAY SCENARIO | April 6 | | | |

- The "A" option allows you to select a new game or continue with a game in progress. When you select a saved game, the options on the menu are defaulted to

the options selected in your saved game. When you select the "SAVED GAME" option and press RETURN, you will be prompted to insert your saved game diskette and type in the name of the file (you will be allowed to view a list of files on the save game disk if you wish). You may not change game options when you boot up a saved game.

- Options "B" and "C" allow you to set the Confederate or Union player to be controlled by a human or the computer.

- Option "D" gives you a choice of three games of varying complexity. The differences are explained under the appropriate headings of this rulebook. The INTERMEDIATE Game is exactly the same as the ADVANCED Game except for the deletion of leaders' command control and voluntary fortification.

- Option "E" allows you to play a game where only known enemy units of both sides will appear on the map during the combat phase. Hidden units will also become visible when moved adjacent to during the Operation Phases. It is strongly recommended that you play the game with this option to realistically portray the "fog" of war.

- Option "F" gives the black-and-white or monochrome user better-suited unit shapes. Atari owners are given the option of a one- or two-drive system here. C-64 owners are allowed to choose between light blue or dark blue for the Union color.

- Option "G" allows you to play with icons (figure profiles) or symbols (bars). Symbols are recommended for INTERMEDIATE and ADVANCED play since they show facing and mode changes. Icons are automatically used for the BASIC game.

- The "H" option selects the difficulty level. Level 3 is historical and makes no modification to either side. Levels 1 and 2 favor the Confederate player (level 1 more so than level 2). Levels 4 and 5 favor the Union (5 more so than 4). Levels affect the casualties inflicted in fire and melee combat. Please note that you should play an easy level of difficulty the first few times you play the game. Level 3 is a challenge.

- The "I" option allows for variable Union reinforcement arrivals. Units may appear up to two to eight hours earlier or later. Level 3 is historical with no changes. Levels 1 and 2 allow for earlier times and later times respectively by a random of 0 to 2 turns (level 1 earlier and 2 later). Level 4 allows for a random of 0 to 2 turns earlier to later arrival. Level 5 allows for 0 to 4 turns earlier to later arrival. The authors and playtesters recommend that once players are acquainted with the system, they should play with option level 5. This truly recreates the uncertainty of a battle where commanders did not know the size of the opposing force or how quickly they would be reinforced.

- The "J" and "K" options allow for variable amount of ammo received by the individual units. Level 3 is historical with levels 1 and 2 giving progressively less ammo and levels 4 and 5 giving progressively more ammo.

- The "L" and "M" allow players to adjust the initial efficiency of their units. Setting this option at 1 reduces units' efficiency by 10. Setting it at 2 reduces efficiency by 5. A setting of 3 makes no efficiency change. A setting of 4 or 5 increases efficiency by 5 and 10 respectively.

- Option "N" selects the full, two-day campaign game scenario, or the shorter, one-day scenario. The victory point conditions are changed when the one-day scenario is chosen.

After you have chosen your options, a series of displays showing casualties for men, guns, leaders, and objectives will be presented on the screen. Press RETURN to continue. You will then be asked to set the delay loop for the displayed messages for this turn. (Use 4 or 5 with a speed-up card.)

2.2 Historical Set-Up

At the start of the game, the computer will assign all combat forces to their locations the morning of April 6, 1862. All units have been historically placed.

3.0 SEQUENCE OF PLAY

- 1. Command Control Phase
- 2. Recovery/Rally Phase
- 3. Reinforcement Phase
- 4. Confederate 1st Operations Phase
- 5. Confederate 1st Combat Phase
- 6. Union 1st Operations Phase
- 7. Union 1st Combat Phase
- 8. Mid-Turn Recovery Phase
- 9. Confederate 2nd Operation Phase
- 10. Confederate 2nd Combat Phase
- 11. Union 2nd Operation Phase
- 12. Union 2nd Combat Phase
- 13. End of Day Phase (Turn 8 only)
- 14. Victory Determination Phase

4.0 COMMAND CONTROL

During this phase, all units make a range check to their appropriate division and corps leaders and receive a command control rating of 0.5 to 1.5 based on this range, a random number, and the proficiency ratings of the leaders. The command control rating affects strength, operation points received, and ammo resupply. Please note that command control is checked only once per game turn. In the Intermediate game, units are randomly assigned a command control of 0.9 to 1.2. Union command control will be lower for the first few turns of the game. Reinforcing units receive an automatic 1.5 rating for the first turn on the map. In the Advanced Game, cavalry has a command control value of 1.2 and artillery has 1.0 regardless of leader range.

4.1 Range of Leaders

The chart below shows the cost in command points per square the leader is from the infantry unit making the range check. A range check is also made between the two halves of a brigade if the brigade has been divided into demibrigades.

	OTHER HALF OF BRIGADE	DIV. CMDR.	CORPS CMDR.
Command Points Cost Per Square	5	5	1 Confed. 0.5 Union

There is a maximum cost for the "OTHER HALF OF BRIGADE" of 20 command points (4 squares). The maximum cost for the "DIV. CMDR." is 35 command points (7 squares). The maximum cost for the "CORPS CMDR." is 10 for the Confederate units and 5 command points for the Union units (10 squares). The range and values above are used to determine the base command control rating. If a unit is in or next to the square which contains its corps commander, the command cost for its divisional commander will be based on the range to its corps commander instead (unless it is in the same square with its divisional commander). The effect of this is to permit a player to separate a division into two parts and use the corps commander to maintain the command control rating for the part of the division that is away from the division commander.

The base command control rating is determined by dividing the command points cost into the constant 28. (Base command = 28/command points costs). The number derived is rounded up or down to fit between the range of 0.5 to 1.5. See back of rules for examples of how to calculate command control.

4.2 Leader Bonus and Command Control

Each leader has a bonus rating that is modified by a random number each turn. The modified bonus is a number from 0 to 70+. This number determines the effect the leader has on units under its command as shown by the chart below. The effect is subtracted from a unit's base command control.

RANDOM PLUS RATING	EFFECT	MESSAGE GIVEN ON SCREEN
0-30 =	-0.3	Leader confused!!!
31-48 =	-0.2	Leader indecisive!!
49-70 =	-0.1	Leader cautious!
70+	0	Leader confident.

Each unit will be affected by both its divisional and corps commander. A unit will lose 0 to 0.3 from its base command control for each leader. Thus a unit with a base command of 1.3 may end up with a command control number from 0.7 to 1.3 after receiving the effects of its divisional and corps leaders. A unit will receive no less

than a 0.5 rating. The command control of artillery and cavalry units are not affected by leader proficiencies. Artillery always has a command control of 1.0 and Cavalry always has a command control of 1.2.

The leader bonuses are further modified as follows: On turns 1–3, 20 points are subtracted from the bonus of the Union leaders. On turns 4–8, ten points are subtracted from the bonus of the Union leaders. On turns 9–15, 10 points are added to the bonus of the Confederate leaders.

4.3 Operation Points

A unit's operations points on any particular turn are determined by its Command Control rating, its Morale, and a random number as illustrated in the following table:

COMMAND CONTROL	30 MORALE	60 MORALE	90 MORALE
.5	6	6	6
.6	6	6–7	7–8
.7	6–7	7–8	8–9
.8	7–8	8–9	9–10
.9	8–9	9–10	10–11
1.0	9–10	10–11	11–12
1.1	10–11	11–12	12–13
1.2	11–12	12–13	13–14
1.3	12–13	13–14	14–15
1.4	13–14	14–15	15
1.5	14–15	15	15

A unit's strength is modified by multiplying it by its Command Control. The smallest Command Control modifier that will be applied is 0.5 and the maximum is 1.5. *EXAMPLE: a unit with a strength of 500 men and a Command Control of 0.9 would have an effective strength of 450 before any other modifications ($500 \times 0.9 = 450$).*

A unit's ability to rally and resupply with ammo is also affected by its Command Control rating.

5.0 RECOVERY/RALLY PHASE

Units in this phase recover from disruption and attempt to rally. They also have a chance to receive ammunition. Units are automatically rallied during the night (Rally Phase of the 8AM turn.)

5.1 Rally

Units that are routed will attempt to rally based on morale, command control rating, and a random number. Units with a morale of less than 31 or an efficiency of less than 40 will not rally. All routed units on the 8AM turn will automatically rally (their fatigue is reduced to 0 during the night) except that units which began the game with an effectiveness below 40 will never rally. See the Rally Table at the end of this rulebook for more details.

5.2 Ammo Replenishment

Each unit has a maximum carrying capacity of 4 ammo points. If a unit is at its maximum or is routed, it will not be resupplied. In addition, a unit has a 60% chance of receiving no ammo. The higher the command control, the greater the chance of receiving more than one ammo point.

Units are automatically resupplied to the maximum on the 8AM turn of day 2.

6.0 REINFORCEMENT PHASE

Reinforcing units automatically receive a command control rating of 1.5 for the first turn (both phases) they are on the map. See Order of Battle for the order of appearance.

Union reinforcements from Buell's Corps will arrive at Pittsburg Landing (squares 25,7 and 25,8). A maximum of 8 units can stack in these two squares. Union reinforcements will be delayed while these two squares are in a Confederate ZOC.

Other reinforcing units will be delayed while their designated entry squares are enemy occupied. L. Wallace's division can also come on at either 12,0 or 21,0 if their entry square of 13,0 is enemy occupied.

7.0 OPERATION PHASE

During this phase players may perform a variety of actions including movement, double-time marches, fire and melee plots, leader transfers, mode changes, and facing changes.

7.1 Cursor Menu

You are using the Cursor Menu when you first enter the Operation Phase. You return to the Cursor Menu from the Command Menu by pressing the "Q" key. When in the Cursor Menu, you will see the following menu below the map. The day, phase number, and time of day are also displayed. In this menu you may do the actions listed below:

- (0) = Centers map at cursor ("5" for optional IBM key pad).
- (1-8) = Moves cursor in desired directions ("1-9" for optional IBM key pad).
- (C)ombat = Exits to Combat Phase (Press this key when you are finished moving and giving orders to all your units).
- (G)et unit = Upon pressing the key, you will be prompted to input a number corresponding to one of your units (See Order of Battle.) The cursor will go to that unit and access it, putting it into the Command Menu.
- (O)ther map = Toggles the map between tactical and strategic
- (P)age = Second menu. On this menu will be displayed the number of recons you are allowed to conduct, along with other commands. If in this menu, "P" will switch you to first menu.
- (R)econ = Pressing this key when the cursor is over enemy units will display an approximate strength of the unit(s) in the square.
- (T)errain = Removes units from the map to see terrain.
- (V)iew = Prompts you to indicate a direction and then highlights the squares that can be seen from that square.

(SPACE BAR) = Accesses first friendly unit in square. Command Menu for that unit is now active.

(W) = Highlights any Confederate Objective Square currently on the screen. Pressing any key will then highlight any Union objective square currently on the screen. Pressing any key will then exit to the cursor menu.

(Z) = Abort. The cursor will return to the last square where a unit was accessed.

Also displayed in the Cursor Menu is the terrain type, elevation, and X, Y coordinates of the square. The time, date, phasing player, and phase number is also shown.

7.2 Unit Statistics

When you access the first unit in a square, you will see the following display (example):

```
CONFED ANDERSON INF 1634 MEN 8 1 2
DS:N AMMO:4 MEL:N FT:0 EF:~/G 7 3
NORMAL OP:13 DIR:2 ADV:N 6 5 4
LIGHT WOODS (2) X, Y:2,26 NO PLOT
```

The display above shows that the Confederate unit, Anderson, is INFANTRY with 1634 men. It is not DISRUPTED, has 4 ammo points, is NOT plotted for MELEE, has a FATIGUE of 0, and an unknown EFFICIENCY. Its efficiency will remain unknown until its morale is tested in battle. The G to the left of the / means the unit is green and has never been in battle before. The unit is in NORMAL mode, has 13 remaining OPERATION POINTS, is facing DIRECTION 2 and is not plotted for ADVANCE. It is on a light wood square with an elevation of 2. The unit occupies the square with X, Y coordinates 2,26 and is not plotted to fire. There is a compass showing directions of movement and facing.

A second page of unit statistics may be accessed by typing "P".

```
CONFED ANDERSON INF 1634 MEN
FORT:0 NONRTD CC:1.2
MSK MRL:? LEADER:BRAGG
LIGHT WOODS (2) X, Y:2,26 NO PLOT
```


The second display above shows that the Confederate unit, Anderson, is INFANTRY with 1634 men. The unit has a FORT value of 0, is not routed, and has COMMAND CONTROL OF 1.2. Its weapon type is MUSKET, and its MORALE is unknown (?). The unit belongs to Bragg's Corps. It is on a light woods square with an elevation of 2 with X, Y coordinates 2,26. It is not plotted to fire.

7.3 Command Menu

You enter the Command Menu from the Cursor Menu when you pick up a unit by either pressing the Space Bar when the cursor is located over a unit or by pressing the "G" key and then entering a unit number. The Command Menu is used to move and give orders to your units. The commands listed below can be enacted by pressing the appropriate key in either page of the unit statistics.

(0) = Centers map on unit ("5" for optional IBM key pad)

(1-8) = Moves unit in desired direction as indicated by the compass, changing its facing automatically. ("1-9" for optional IBM key pad).

(A)dvance = Plots the unit to advance if given the opportunity in fire phases or melee.

(B)uild = (Advanced Game Only) Builds one level of fortification.

(D)irection = Prompts you to input a new facing (1-8) for the unit. ("1-9" for optional IBM key pads).

(F)ire = Takes you to the Target Menu which allows you to set a priority fire square.

(H)elp = Displays Help Menus

(I)nverse division = All units that belong to the same division as the accessed unit will be inversed. The square with the divisional leader will be inversed and blinking. (Advanced Game: When you press this key, you will also be able to set the fire plots of all units in that division to "No Fire" or "No Plot.")

(L)eader = (Advanced Game Only) Displays a menu with the name of the divisional or corps commander attached and allows you to transfer that leader if you desire. The menu also allows you to go to the divisional or corps commanders.

(M)elee = Plots the unit to melee in the direction it is facing.

(N)ext = Accesses next unit in the unit order (the unit orders are listed in the Order of Battle).

(O)ther map = Toggles between tactical and strategic map.

(P)age = Displays the other page of unit statistics.

(Q)uit = Exits Command Menu and goes to Cursor Menu.

(R)eorganize = Will divide the unit into an "A" and a "B" unit or will recombine an "A" and a "B" unit if in the same square and of the same brigade.

(S)tatus = Changes the mode of the unit.

(T)errain = Removes units on map to view terrain underneath.

(U)nder = Accesses next unit in the same square.

(V)iew = Allows you to view all squares the accessed unit can fire into (squares are highlighted).

(X) = Double Time (adds to the unit more operation points by increasing fatigue).

(Z) = Abort move. The unit you have accessed will return to its original square, facing, and mode with its original operation points and fatigue (unless it reveals a hidden unit).

You should study carefully the commands above. Proper use of the commands greatly facilitates the playability of the game. Note that the "Z" key in the Command Menu allows you to take back a unit's move or action (except that 4 OP are spent when the unit uncovered a hidden enemy unit). Notice how it differs from the "Z" key in the Cursor Menu,

which returns the Cursor to the last square where a unit was accessed with the SPACE BAR. The "N" and "U" keys are very handy when moving groups and stacks of units. Since reinforcements enter in unit order, it's best to use "N" when moving reinforcement columns. Note that the artillery at the end of a reinforcement column isn't in unit order so you should use the "Z" key from the cursor menu to get back to them. The "U" key is essential to examine stacks of units. The "F" key takes you to a target menu where you may scroll over the map, target units, and even view what you can see to fire at. The "O" key toggles you to and from the strategic map and can be very useful in seeing lines of sight when using the "V" key. This map may also be useful when using the "I" key to locate divisions and leaders.

7.4 Operation Points

Units receive operation points at the beginning of the turn and at the Mid-Turn Recovery Phase. A unit receives operation points according to its command control (see section 4.3). Most actions and movement in the Operation and Combat Phases cost operation points (refer to Operation Costs Table at the back of the rulebook). Please note that operation points are expended to fire and melee. Unused operation points are expended to recover fatigue and efficiency on a 1 for 1 basis (2 to 1 if adjacent to an enemy unit) during the Mid-Turn Recover Phase and the end of the turn. Operation costs for movement are doubled during the Night Turn.

7.5 Moving a Unit

Once a unit is accessed (*EXCEPTION: units that have not been activated*), it may be moved by pressing keys "1-8" ("1-9" for optional IBM key pad) in the desired direction. Operation points expended to move depend on unit type, unit mode, terrain of the square, and other factors (see Operation Costs Table). Units may always move one square at the cost of all remaining operation points (*EXCEPTION: ZOC rules, section 7.6*). Units may move as part

of an advance during the Combat Phase without expending operation points. The advance is allowed if plotted (see Command Menu 7.3) and the unit is otherwise eligible. Artillery may not move unless limbered.

Press "Z" to cancel a unit's movement and to put it back to its original square. If using the hidden option, a unit will lose 4 operation points when it uses the "Z" key if it has caused hidden units to appear on the map by moving next to them. Routed units may move the same as other units. Since they may not change mode to column, they never use the road rate, but may cross bridges.

During the second phase of the night turn, Confederate units have extended movement, as long as they do not move next to an enemy unit. During this phase, changing mode and reorganization does not cost Operation Points. Units will gain fatigue normally, however.

7.6 Zones of Control

The eight squares surrounding a unit constitute its zone of control. Zones of control affect movement costs per the Operation Costs Table. It costs two extra operation points to exit or enter an enemy zone of control. Movement from an enemy ZOC to another will cost extra operation points in addition to normal costs and will only be allowed if no other movement has been made by that unit and the unit is entering a square occupied by a friendly unit (See Costs Table). ZOC to ZOC movement is also allowed during advances in the Combat Phase. Units forced to retreat during combat into an enemy ZOC suffer losses. Changing mode in an enemy ZOC costs two additional operation points.

7.7 Stacking

No more than two non-artillery units may stack together. No more than one artillery unit may be in a single square regardless of the presence of other units. You may have a maximum of two non-artillery units and one artillery unit in a square.

A unit in the Operation Phase may overstack while moving if in column, mounted, or limbered mode (*EXCEPTION: road movement*). It may not end its

move overstacked. Routing units may also overstack during retreat and movement.

Stacking shapes are dependent on what is in the square. All units in a square assume the direction of facing of the last unit accessed in the square. When a square is fired upon by non-artillery units or artillery at greater than one range, casualties are distributed among the defenders with one of the defending units receiving 3 times the casualties of the others. A square fired upon by artillery at a range of one will affect only one unit in the square.

When routed units stack onto friendly units during retreat, each unit loses 8 efficiency points.

7.8 Road Movement

To receive the road movement rate, units must be in column, mounted, or limbered mode. Only infantry which has been divided into demibrigades (A and B) and is in column mode will receive the road movement rate.

Units receive the road rate only if they are in a square containing a road and moving along it into a square containing the same road. A unit in column, mounted, or limbered mode moving from one road square to another may not stack onto another unit in column, mounted, or limbered mode.

7.9 Unit Modes

Units may be in one of two modes which affect movement and combat. Infantry units may be in column or line. Cavalry may be mounted or dismounted. Artillery may be limbered or unlimbered. When a unit changes mode, its graphic shape on the map also changes. Changing modes requires the expenditure of operation points as listed on the Costs Table. Routed units and the gun boats may not change modes. Artillery cannot change modes in a ravine.

Unlimbered artillery may not move. Changing mode in an enemy ZOC costs two extra operation points. Dismounted cavalry has a 0.75 modifier applied to its strength (when dismounted, .25 of the men are considered to be horse holders). Infantry in column, limbered artillery, and mounted cavalry are considered to be

flanked when fired upon from any direction. In addition, they suffer fire modifiers and have special modifiers in melee (see table at back.).

7.10 Facing

A unit may have eight different facings from 1 to 8 ("1-9" for optional IBM key pad). Facing may be changed at any time during the operations phase at no cost. Facing automatically changes during movement as a unit faces the square it is moving into. In addition, all units in a square will assume the facing of the last unit accessed in the square.

All units in a square have the same facing. This way you may change the facing of an entire stack by changing the facing of just one unit. Units and stacks of units will assume appropriate shapes on the map to reflect their facing.

Facing determines a unit's line of sight. A unit has a line of sight equal to a 90 degree angle radiating in a V shape from the unit. See 8.3 for further details on line of sight. A unit fired at through a direction not in its line of sight is considered to be flanked.

7.11 Double Time

A unit may receive extra operation points by double time marching at a cost of fatigue points on a one to six basis. Pressing the "X" key in the Command Menu will increase the fatigue level by six and increase the operation points remaining by one. Routed units, units with more than 15 OP, and units with fatigue levels of 40 or higher may not use double time.

7.12 Fortification

A unit may have a fortification value of 0 to 5 that modifies combat results (See Modifier Table). Fortifications are built one level at a time by pressing the "B" key at a cost of operation and fatigue points in the Advanced Game only. (see Costs Table). A unit in mounted, column, or limbered mode, a unit with less than 8 OP, and a unit with a fatigue of 20 or more may not fortify. Units will automatically fortify during the End of Day Phase (Section 10.0). In the Intermediate Game, units fortify only after the Night turn. They will do this automatically.

7.13 Leaders and Leader Movement (Advanced Game Only)

Leaders are attached to specific units. Each leader commands a formation. Formations are brigades, divisions, and corps. Leaders are organized into a chain of command that must be updated when a leader is wounded. A corps commander who is wounded will be replaced by one of the divisional commanders in his corps. That divisional commander will be replaced by a brigade leader of his division. When a brigade commander is promoted to command a division or corps, his leadership rating is increased by 5. Brigade leaders are assumed to be with both units of their brigade when it is divided into demibrigades. They are not attached to a particular unit as long as they are brigade leaders. When promoted to command a division or corps, they are attached to specific units.

Whenever the unit a leader is attached to loses men to fire or capture, there is a chance the leader will become a casualty. This chance is 10 per cent greater than the losses suffered by the unit.

EXAMPLE: if the unit suffers a 40 per cent loss, the chance that the attached leader will become a casualty is 44 per cent (4 is 10% of 40 and $40 + 4 = 44$).

Divisional and corps commanders may be transferred to any unit under their command (*EXCEPTION: Grant may not be transferred during the first turn*). Pressing "L" when a unit is accessed will list any leader present and prompt you to transfer it. If you wish to transfer, the cursor will cycle through eligible units. At this time you may also press "B" or "C" which will take you to the divisional or corps commanders. You may also press "E" to exit. If you go to the divisional or corps commanders, you will see displayed the leader's name, his rating in parentheses, and the range from the current unit. You may access the leader by pressing "A". At this point you may choose any of the displayed options.

Pressing "I" for a unit in the Command Menu will inverse all units that belong to the same division as the accessed unit. The location with the divisional leader will blink. At this point, you may plot all units of the division for "No Fire" or "No Plot" (see Section 7.14) or "Exit" by pressing the appropriate key displayed on the screen.

Every time a unit with a leader takes casualties, there is a check to see if the leader is wounded. Each leader has a combat bonus or proficiency rating. A leader with a rating of 20 will increase casualties inflicted by the unit he is with by 20%. See the Order of Battle for each leader's rating. Corps and divisional leaders are important to command control. Brigade leaders affect rally. When a leader dies, the unit it is attached to loses 5 efficiency points. When a replacement leader is provided, the unit receives a new leader rating. All leaders affect command control in a direct way that greatly affects the play of the game. Please refer to section 4.0.

7.14 Fire and Melee Plots

During the Operations Phase units may plot priority fire, melee, and advances if they wish to perform those actions during combat.

To plot melee, press "M". To plot advance, press "A". For both these plots you may toggle between "Y" for yes and "N" for no by pressing the appropriate command key. Note also that plotting melee will automatically plot fire and advance, as a convenience to the player, since advances are usually desired in melee attacks. You may toggle it back to N for no advance by pressing "A". A unit that moves has its advance plot set to N.

An important note is that a unit will melee only if it has also fired at the square it intends to melee. Plotting melee automatically plots fire into the melee square. Consequently, do not plot melee until after you have moved your unit. A unit will only melee in the direction it is facing. A previous melee plot is erased when a unit moves or changes facing.

To plot fire press "F", which will display a menu that will allow you to move the cursor to the target square and press "T" to target it. Pressing "V" will high-

light all squares eligible to be target squares and pressing "E" will return you to the command menu, inserting a "No Plot" into the fire plot. Press "N" to put a "No Fire" plot into a unit. The unit will not fire at a target greater than one square away, thus conserving ammo. A fire plot will only be accepted if the targeted square is within range and in line of sight (see 8.3, Line of Sight). A unit that plots a melee will automatically plot that square for fire.

Units that are unable to execute their priority fire plot or units without a plot will fire at the nearest enemy unit in range and in line of sight. A unit will cancel its plot to fire at an adjacent target.

7.15 Reorganization

The command, "R", will divide a full brigade into two demibrigades (A and B) each of equal size. Using the "R" command with the A and B units of a brigade in the same square will build them up into the parent unit. This will not be allowed if both units have a divisional or corps leader attached to them. For example, if Hare A contained 250 men and was stacked with Hare B which contained 350 men, Hare A could build into the full brigade. Hare A and B would be taken off the map and Hare would contain 600 men. It costs 2 OP to divide or build up a parent unit. *NOTE: For an infantry unit to use road movement, it must be organized into demibrigades and in column mode.*

When units build-up or break down, fatigue, efficiency, and ammo supply are proportionately averaged and given to the surviving unit(s). Facing, plots, disruption, and mode are all defaulted to what the surviving unit(s) had before the build-up/break down. *NOTE: Units may not be reorganized while they are routed.*

A brigade with only one unit on the map has its brigade command control modifier defaulted to 0 (it is treated as if the other unit was stacked with it.)

8.0 COMBAT PHASES

During this phase, all fire phases and melees are resolved. Casualties are taken. Routs, retreats, and advances are all executed.

8.1 Combat Phases

There are a total of five Fire Phases and one Melee Phase during a Combat Phase as outlined below:

- Defensive Artillery Fire Phase
- Offensive Artillery Fire Phase
- Defensive Fire Phase
- Offensive Fire Phase
- Retreat/Advance Phase
- Defensive Melee Fire Phase
- Melee Phase
- Retreat/Advance Phase

Defensive Fire Phases are executed by the non-phasing player and Offensive Fire Phases by the phasing player. Messages will appear on the screen and the map will scroll to fired upon units. Casualties and other combat results will be printed on the screen. Several possible messages may appear on the screen during combat. The most important are listed below:

FLANKED! The target unit has been flanked by the attacking unit. This means that the attacking unit is not in the line of sight of the target unit or the target unit is in limbered or column mode (See Section 8.3). A 50% modifier is added to the strength of the attacking unit for fire and melee. In melee, a flanked defender's strength is reduced by 50 per cent.

DEFENDER OUTMANEUVERED! A defending unit can be outmaneuvered when the attacker enters the unit's ZOC during the movement phase and when both the attacker and defender are in woods squares. A unit which has been outmaneuvered has its defensive fire strength halved.

SUCCESSFUL ATTACK! An offensive player who has just moved next to an enemy target has a 20% chance of having its strength increased by 50%. The 20% is increased by 1 for every 2 morale points of the attacker.

UNITS RETREATING OR ROUTING! The units just fired upon will retreat or rout during the next Retreat/Advance Phase.

CONFEDERATE MEN ARE LOOTING! This message appears before command control is determined for turns 2 and 3. During these turns, Confederate attacks are reduced to 75% of normal and Union attacks are reduced to 90 % of normal.

8.2 Casualties

A unit inflicts casualties with its fire based upon a number of factors. See the Strength/Casualties Modifier Tables for the factors and their effects.

Artillery units lose guns and artillerymen. They are eliminated when their gun or men count reaches 0. Artillery guns are lost due to combat when enemy artillery is firing upon them, when they retreat from an enemy ZOC, or in melee. Infantry fire against artillery results in artillerymen casualties only. An artillery unit will retreat in melee or fire combat if it loses about 30% or more of its original strength in men. Artillery units recover 33% of their lost artillerymen per turn. Artillery units low on men or artillery units that are stacked alone in a square and limbered when fired on by infantry or dismounted cavalry will automatically retreat. Artillery units low on men suffer less casualties as a result of fire.

8.3 Line of Sight and Fire

In order for a unit to plot or execute its priority fire plot, it must be able to see and be in range of the target. Those squares a unit can see are in its Line Of Sight (LOS). Squares that are in a unit's LOS and within the maximum range of its weapon are in its Line Of Fire (LOF). Ranges of weapon types are listed on the Weapons/Range Casualty Table. You may view the line of fire of any unit by pressing "V" when the unit is accessed in the Command Menu or Target Menu. Pressing "V" in the Cursor Menu displays the line of sight (those squares a unit in that square and with the indicated facing could see) from that square. During the Night Turn, a unit's LOF range is limited to 1 square.

Union gunboats have the special ability to fire at some squares they cannot see. These squares are highlighted from the gunboat Target Menu when "V" is pressed. This "indirect" fire ability is unique to the gunboats.

There are 2 elevation levels on the map representing 40–50 feet of elevation per level. Woods represent a 30 foot elevation obstacle and units 5 feet.

8.4 Melee

To melee, a unit must be plotted for melee and be undisrupted. It will melee into the square it faces and it fired into if the square is adjacent. All units plotted against the same square are combined into one attack. Defending units in a melee have an extra defensive fire before melee is resolved. Units expend operation points to melee (see Costs Table). Units must have enough operation points for both fire and melee, otherwise their melee is cancelled. See the Modifier Tables and the Melee Combat Results Table for details.

8.5 Retreats

As a result of rout, fire combat, or melee, units may be forced to retreat. Retreats are mandatory for routed units. Refer to the table at the back of the rulebook for chance of retreating during melee. Retreats during fire combat are determined by the unit's morale and percentage of losses in any one combat result. The lower the morale of the units in the square under attack and the higher the losses expressed as a percentage of men present, the greater the chances to retreat. Retreated units will generally retreat away from enemy units towards the rear of their lines. A unit that routs will lose men to capture depending on the number of adjacent enemy units. Retreating units also suffer casualties in captured men if they have to enter an enemy ZOC. A routed unit that retreats into or out of an enemy ZOC will lose captured men and efficiency. Friendly units routed onto lose 8 efficiency points. A unit that retreats ends the retreat facing the same direction it faced in the original square it retreated from. Units that cause enemy units to retreat gain 2 efficiency points. Units that retreat lose 3 efficiency points.

A defending unit that retreats is automatically disrupted. An artillery unit will retreat in melee or fire combat if it loses about 30% or more of its original strength in men. Artillery units which retreat end the retreat in limbered status. Limbered artillery units alone in a square (not stacked with other units) will automatically retreat when fired on by infantry or dismounted cavalry.

8.6 Morale, Rout, and Rally

A unit's morale is equal to its efficiency minus its fatigue. A morale check is made for possible rout whenever a unit takes losses. A unit with a morale of 4 to 15 has a chance of routing. A unit with morale less than 4 routs automatically (*EXCEPTION: units which take less than 10 casualties will not rout*). A unit with less than 81 men will automatically rout when it loses 10 or more men. When a unit routs, it retreats three squares. If it will end its retreat overstacked, the unit continues to retreat until it finds an eligible square. Artillery never routs; it may only retreat.

8.7 Advances

Units plotted to advance will advance in the combat phase into squares vacated by retreating enemy units. Advancing ZOC to ZOC is allowed.

8.8 Disruption

Every time a unit suffers losses, there is a chance it will become disrupted. A defending unit which retreats as a result of melee is automatically disrupted. A disrupted unit loses its priority fire plot. It may not fire except for defensive melee fire nor may it execute melee plots. A unit has a chance of becoming undisrupted at the beginning of the turn and at the Mid-Turn Recovery Phase. Its chances and conditions for recovery are found on the Disruption Recovery Table.

8.9 Ammo

Each unit carries with it a supply of ammunition sufficient for up to four attacks. Every time a unit fires, an ammo point is expended. When a unit runs out of ammo, it may only defend in melee and final defensive fire. Units have an ammunition resupply opportunity every turn. See Section 5.4 for more details on ammo resupply.

8.10 Fatigue/Efficiency

A unit's fatigue rating is a measure of how tired it is. It gains fatigue when it moves and loses efficiency when it takes losses. See the Fatigue Gain/Efficiency Loss Table for details. Fatigue and efficiency have a semi-proportional effect on fire strength (see Modifier Tables at back). Efficiency minus fatigue equals morale. Since gaining fatigue lowers morale, you may raise morale by losing fatigue. You lose fatigue/recover efficiency by having left over operation points in the middle and at the end of a turn. One operation point wipes out one fatigue point (two operation points wipe out one fatigue point if in an enemy ZOC). A unit will recover half of its lost efficiency during the End of the Day Phase. Also during this phase, units lose their fatigue completely.

Units begin the game untried with an efficiency of ?. This means that the unit's starting efficiency is unknown and will not be known until the unit is engaged in combat. A unit's current efficiency will never be greater than its original efficiency.

9.0 MID-TURN RECOVERY PHASE

During this phase units will check to recover disruption, fatigue, and efficiency.

10.0 END-OF-DAY PHASE

This phase occurs after the night turn. During this phase, units lose all fatigue. In addition, units recover efficiency equal to half of the difference between their starting efficiency and current efficiency. Units will also automatically fortify during this phase from 0 to 2 fortification points based on fatigue, efficiency, and enemy ZOC. Units with a fatigue of 40 or more will not fortify. Units with a fatigue of greater than 20 and in an enemy ZOC will not fortify.

During the second phase of the night turn, Confederate units have special movement capabilities. As long as they do not enter an enemy ZOC, they can move a maximum of 39 squares.

11.0 VICTORY DETERMINATION PHASE

During this phase, players are awarded points for casualties and territorial objectives. After the appropriate turn is completed, the game ends and the score is compared to the victory levels. You may examine the map and access units of both sides after the game has ended.

11.1 Victory Points

Players receive victory points according to the chart below:

- 1 pt per infantryman/artilleryman lost
- 1.5 pts per infantryman captured
- 2 pts per cavalryman lost
- 3 pts per cavalryman captured
- 100 pts per brigade leader lost
- 200 pts per division leader lost
- 300 pts per corps leader lost
- 100 pts per artillery gun lost
- 150 pts per artillery gun captured

Multiply the above numbers by 2 for captured leaders.

Ignore leader points for the Intermedi-ate Game.

CONFEDERATE OBJECTIVE SQUARES	UNION OBJECTIVE SQUARES
10,18 = 1000 pts	5, 23 = 1000 pts
15, 6 = 1000 pts	5, 29 = 3000 pts
20,19 = 1000 pts	14,27 = 1000 pts
20,13 = 1000 pts	
20, 8 = 1000 pts	
16,14 = 1000 pts	
13,10 = 1000 pts	
25, 8 = 3000 pts	
25, 7 =3000 pts	

To receive points for an objective square, you must control it. Control is determined during Reinforcement Phases. To control an objective square, you must have 3000 men in or adjacent to it without any enemy units being in or adjacent to it. It is not necessary to keep units in or next to a square to maintain control. However, control is lost if any enemy unit, regardless of size, is in or adjacent to the objective square during a Reinforcement Phase.

11.2 Victory Levels

At the beginning of each turn, a display will appear on the screen showing victory levels and the scores needed to attain those levels.

12.0 STRATEGY AND TACTICS

Union Strategy

FIRST DAY: Union first-day strategy should be based on a gradual withdrawal to Pittsburg Landing. The Union withdrawal should be conducted to slow and tire the Confederate units as much as possible but avoid any stand-up fights except from strong defensive positions. The Union forces are much weaker than the Confederates and attempting to hold a line too soon or too far forward will result in a large number of units routing and being captured by the Confederates.

The Union should begin by falling back to a line that runs northwest along the sunken road and then due west from a point one or two squares above the sunken road. As the Confederates advance, this line will have to be abandoned. The Union player should fall back to positions along the ravines and make his final stand just in front of Pittsburg Landing.

Artillery should be positioned to the rear so that it has a field of fire of 5 or 6 squares. Artillery should be withdrawn when the Confederates advance to within two squares. It should pull back to a new line that permits it to recover from fatigue before again engaging the enemy. Artillery should be saved for the stand before Pittsburg Landing. Pull artillery back in time to set it up, rest it, and (ideally) dig it in for this stand.

Artillery should generally be set up on the roads so that it has an escape route. If enemy units are adjacent to an artillery unit at the beginning of a turn, limber the artillery and move it one square to the rear (you can always do this) and then force march it one more square away from the enemy.

Artillery should generally be set up behind ravines with friendly infantry in the ravines (if you are weak) or friendly infantry stacked with the guns (if you are strong).

Union infantry should be retreating one or two squares a turn until it reaches the Sunken Road line described above. It may make a stand for a few turns here, depending on Confederate actions, before retreating to lines further back.

The Union player needs to avoid holding on too long or the Confederate forces will punch through his lines and isolate units. Attempting to "rescue" surrounded units will often result in more Union casualties than the isolated units contained. The Union player should resign himself to "writing off" a certain number of units during the first day.

Units with an efficiency of less than 40 should be kept out of the fighting as much as possible. If they have to be used, they should be used in a protected position. Units with a morale below 35 should be similarly protected. Rest these units and units which are out of ammo or are disrupted behind the line before they rout. Once they have recovered, they can re-enter the battle.

Union cavalry should be used to screen the Union withdrawal. This will mean a large number of cavalry casualties.

Union gun boats should be brought into action as soon as possible. They will keep Confederate forces away from the river.

Be prepared to trade space for time on the first day. The only piece of terrain the Union can't afford to lose to the Confederate on the first day is Pittsburg Landing.

SECOND DAY: On the second day, the tide should turn in the Union's favor. Assuming the Union hasn't suffered too many losses, it should be about 40% stronger than the Confederate.

The Union player should attack vigorously on the second day. The Confederate player should have entrenched during the night and the Union needs to break through this trench line. A broad front attack with extra units committed to the break-through point is a good way to do this.

Once the Confederate is out of the trench line, press him hard to take victory squares and inflict casualties. Always try to surround units. Surrounded units which rout will lose large numbers of men to capture for extra victory points.

Confederate Strategy

FIRST DAY: Attack. On the first turn, hit Peabody's men with Hardee's Corps. If these units rout, they will not return for the rest of the game. Depending on the OP available for movement, you should also attack Hurlbut and Miller's units. Once you get the Yankees on the run, press them hard and don't let up.

Don't expect to take Pittsburg Landing on the first day. Concentrate on crippling the Union army. Attack green units whenever possible in the hope that they will have a low morale and rout. Attempt to surround units and capture guns. Order your men to advance after combat wherever practical, as this is the best way to surround the enemy.

Melees should be used where they permit your forces to advance and cut off enemy units.

When possible, move your artillery on the road into an enemy ZOC, unlimber, and fire. You may have to force march to do this.

Keep units with a morale of 30 and less out of the line. If facing a strong Union line or guns, keep units with a morale of 40 or less out of the line.

Use one phase in every three or four turns to rest your units.

Stay away from the gun boats. Do not go next to the river.

Use the bonus night turn (end of first day) to set up a strong line to withstand the Union counterattack.

SECOND DAY: Unless the Union has been drastically weakened during the first day's fighting, the Confederate player should expect to spend the second day defending. The South should start the second day in fortifications it has constructed during the night. Hold on to these.

The main job of the Confederate player is to hold on to the Victory Squares he won on the first day. This is not to say that local counter attacks are inappropriate to take advantage of Union over confidence.

Tactics

Below are listed a number of suggestions and hints to sharpen the tactical edge of the armies. Well conceived and thought-out plans can be foiled and defeated with poorly executed maneuvers.

1. Artillery is a potent weapon. Its weakness is the exposed crew. Players will find that extended artillery bombardments will result in units low in ammo and morale. Rest your artillery. There are times when you shouldn't fire until you see "the whites of their eyes". Before you assault an artillery position, be sure that the opposing artillery has been weakened.
2. Flank shots not only give a bonus in fire combat, but give a significant bonus in melee.
3. Watch for disrupted units. They can't fire most of the time and are reduced in melee on the defense (they can't even attack on the offense).
4. Retreat units with a low efficiency before they rout. Once a unit with an efficiency of less than 40 routs, it can never be rallied.
5. Watch your command control. It has a tremendous effect in the game. Keep your brigades, divisions, and corps together.
6. Be careful where you place leaders. Their loss can be catastrophic to your command control.
7. Keep in mind that enemy units will lose a considerable number in captured men when they rout in an enemy ZOC.
8. Melee is deadly in this game. All units involved are greatly affected. It does put the matter of who owns the square to rest — quickly.
9. Be aware that in this game, advantages have been given to the attacker who moves next to the enemy, especially in woods.

10. Watch the various modifiers on a unit's strength. A unit can very quickly be reduced to practically nothing, given enough modifiers applied against it. Be careful to rest fatigued units. Fatigue directly affects strength and brings a unit closer to the breaking point. Resting also restores efficiency.

11. Study the terrain and elevation of the ground you are fighting over. Clear lines of sight, especially for artillery, will make a difference.

12. Make sure you will have enough operation points to fire and/or melee.

13. Use double-time marching judiciously.

14. Fortify whenever you are not in contact with the enemy. Give yourself enough time to recover from the fatigue.

15. Remember that the "NO FIRE" plot will allow a unit to fire at units next to him, but not any further. A handy way to conserve ammo and fatigue for long-ranged artillery.

16. Units can plot fire into an empty square in anticipation of enemy units moving into that square the next phase. This option allows you to control your fire on an advancing enemy line.

17. Avoiding losing extra units in vain attempts to rescue surrounded forces. The most common result of such attempts is to lose the rescue forces as well. ■

COMMAND CONTROL EXAMPLES

The examples below involve the brigades of McDowell, Stuart, and Buckland of Sherman's Division of Grant's Corps.

During the Command Control Phase, Grant is declared as CONFIDENT and Sherman is CONFUSED. The brigades of Sherman are situated as follows (#4 is a unit from a different division, but same corps): Keep in mind that a unit loses 5 command points per square away from its other half brigade, or division leader, and loses .5 command points (Union) per square away from its corps commander.

#1 SHERMAN				#2
#4 GRANT		#3		

The #1 unit has the leader Sherman attached to it. The #4 unit belongs to a different division and has Grant attached to it.

The #1 unit is a full brigade that is 0 squares in range from its divisional leader and 2 squares from its corps commander. It is docked 0 command points for the half brigade (the brigade has not broken down), 0 command points for the divisional leader, and 1 command point for the corps commander. Its base command control is 28/1 or 28.0 which is rounded down to the maximum of 1.5.

The #2 unit loses 0 for the half brigade, 20 for the division, and 2 for the corps. Its base is 28/22 or 1.27 which is rounded down to 1.2.

The #3 unit loses 0 for the half brigade, 10 for the division, and 1 for the corps. Its base is 28/11 which is rounded down to the maximum of 1.5.

Since Grant was declared CONFIDENT, none of the units of this corps lose additional points for the performance of the corps leader; Sherman however was CONFUSED, subtracting 0.3 command control from each brigade in his division. This results in unit #1 receiving a final command control of 1.2, unit #2 a command control of 0.9, and unit #3 a command control of 1.2.

In the example above, if Grant had been attached to unit #2 instead of unit #4, the special rule that units in the same square or next to a corps commander ignore the range of their division commander would go into effect. This would result in the following command control values:

Unit #1	HALF	= 0
	DIV	= 0
	CORPS	= 2
	BASE	= 28/2 or 1.5
	CONFUSED	= -0.3
	FINAL	= 1.2
Unit #2	HALF	= 0
	DIV	= 0
	CORPS	= 0
	BASE	= 1.5 (MAX)
	CONFUSED	= -0.3
	FINAL	= 1.2
Unit #3	HALF	= 0
	DIV	= 10
	CORPS	= 1
	BASE	= 28/11 or 1.5
	CONFUSED	= -0.3
	FINAL	= 1.2

The above examples illustrate the need for proper placement of division and corps commanders. It shows how a corps commander can bolster the control of a dispersed division.

CONFEDERATE ORDER OF BATTLE

UNIT #	NAME	BRIGADE LEADER BONUS	DIVISION	DIVISION LEADER BONUS	CORPS	CORPS LEADER BONUS	MEN	EFF.	WEAPONS	SET UP OR ENTRY SQUARE	TURN OF ENTRY
0	RUSSEL - A	6	CLARK	15	POLK	25 *	2060	R	RFL	6,29	1
1	RUSSEL - B										
2	STEWART - A	6	CLARK	15	POLK	25	2072	R	R/M	6,29	1
3	STEWART - B										
4	JOHNSON - A	9	CHEATHAM	15	POLK	25	1770	R	RFL	6,29	1
5	JOHNSON - B										
6	STEPHEN - A	9	CHEATHAM	15	POLK	25	1809	G	R/M	6,29	1
7	STEPHEN - B										
8	GIBSON - A	12	RUGGLES	15	BRAGG	15	2560	R	MSK	2,26	1
9	GIBSON - B										
10	ANDERSON - A	9	RUGGLES	15	BRAGG	15	1634	G	MSK	2,26	1
11	ANDERSON - B										
12	POND - A	5	RUGGLES	15	BRAGG	15	2660	G	MSK	3,27	1
13	POND - B										
14	GLADDEN - A	9	WITHERS	25	BRAGG	15	2754	G	MSK	9,28	1
15	GLADDEN - B										
16	CHALMERS - A	9	WITHERS	25	BRAGG	15	2039	G	RFL	6,29	1
17	CHALMERS - B										
18	JACKSON - A	5	WITHERS	25	BRAGG	15	2208	G	MSK	5,28	1
19	JACKSON - B										
20	SHAVER - A	9	HINDEMAN	15	HARDEE	25	2360	G	MSK	9,25	1
21	SHAVER - B										
22	CLEBURNE - A	12	HINDEMAN	15	HARDEE	25	2450	G	MSK	6,25	1
23	CLEBURNE - B										
24	WOOD - A	10	HINDEMAN	15	HARDEE	25	2508	G	RFL	7,26	1
25	WOOD - B										
26	TRABUE - A	12	BRKNRDGE	25	JOHNSTON	30	2400	G	MSK	5,29	1
27	TRABUE - B										
28	BOWEN - A	9	BRKNRDGE	25	JOHNSTON	30	1100	G	RFL	5,29	1
29	BOWEN - B										
30	STATHAM - A	9	BRKNRDGE	25	JOHNSTON	30	1620	G	RFL	5,29	1
31	STATHAM - B										
CAVALRY											
32	BREWER	12			POLK		769	R	SHG	5,29	1
33	TEX. RNGR	12			POLK		769	R	SHG	0,14	3
34	ALA. RNGR	12			BRAGG		817	R	PST	2,27	1
35	CLANTON	12			BRAGG		969	R	R/C	6,29	1
36	GA. DRGON	9			HARDEE		606	R	R/C	25,29	5
37	ADAMS	9			HARDEE		606	R	MSK	25,29	5
38	FORREST	14			JOHNSTON		785	R	SHG	25,29	5
ARTILLERY											
									# GUNS		
39	BANKHEAD				POLK		192	R	12 SM6	6,29	1
40	SMITH				POLK		192	R	12 SM6	6,29	1
41	HODGSON				BRAGG		256	R	16 H12	2,27	1
42	GIRARDEY				BRAGG		224	R	14 SM6	5,28	1
43	SWETT				HARDEE		320	R	20 SM6	7,27	1
44	SHOUD				JOHNSTON		224	R	14 H12	5,29	1
45	LYON				JOHNSTON		288	R	18 SM6	5,29	1
46	RUTLEDGE				JOHNSTON		192	R	12 H12	5,29	1

UNION ORDER OF BATTLE

UNIT #	NAME	BRIGADE LEADER BONUS	DIVISION	DIVISION LEADER BONUS	CORPS	CORPS LEADER BONUS	MEN	EFF.	WEAPONS	SET UP OR ENTRY SQUARE	TURN OF ENTRY
47	HARE - A	5	McCLND	15	GRANT	50	1223	R	RFL	13, 9	1
48	HARE - B	5	McCLND	15	GRANT	50	1223	R	RFL	13,10	1
49	MARSH - A	6	McCLND	15	GRANT	50	770	R	MSK	11,14	1
50	MARSH - B	6	McCLND	15	GRANT	50	770	R	MSK	11,14	1
51	RAITH - A	6	McCLND	15	GRANT	50	951	R	RFL	12,17	1
52	RAITH - B	6	McCLND	15	GRANT	50	951	R	RFL	13,17	1
53	TUTTLE - A	5	WALLACE	25	GRANT	50	902	R	RFL	20, 8	1
54	TUTTLE - B	5	WALLACE	25	GRANT	50	902	R	RFL	21, 8	1
55	McARTHUR - A	10	WALLACE	25	GRANT	50	1148	R	R/H	17, 6	1
56	McARTHUR - B	10	WALLACE	25	GRANT	50	1148	R	R/H	18, 6	1
57	SWEENY - A	9	WALLACE	25	GRANT	50	1816	R	RFL	19, 4	1
58	SWEENY - B	9	WALLACE	25	GRANT	50	1816	R	RFL	19, 5	1
59	M. SMITH - A	4	L. WALLACE	15	GRANT	50	1998	R	RFL	13, 0	8
60	M. SMITH - B										
61	THAYER - A	5	L. WALLACE	15	GRANT	50	2236	R	RFL	13, 0*	8
62	THAYER - B										
63	WHITSY - A	5	L. WALLACE	15	GRANT	50	2541	R	RFL	13, 0*	8
64	WHITSY - B										
65	WILLIAMS - A	5	HURLBUT	25	GRANT	50	1162	R	R/M	19,13	1
66	WILLIAMS - B	5	HURLBUT	25	GRANT	50	1162	R	R/M	19,14	1
67	VEATCH - A	4	HURLBUT	25	GRANT	50	1292	G	R/M	17, 9	1
68	VEATCH - B	4	HURLBUT	25	GRANT	50	1292	G	R/M	17,10	1
69	LAUMAN - A	10	HURLBUT	25	GRANT	50	761	R	R/M	20,13	1
70	LAUMAN - B	10	HURLBUT	25	GRANT	50	761	R	R/M	21,13	1
71	McDOWELL - A	4	SHERMAN	35	GRANT	50	965	G	RFL	5,18	1
72	McDOWELL - B	4	SHERMAN	35	GRANT	50	965	G	RFL	6,18	1
73	STUART - A	5	SHERMAN	35	GRANT	50	655	G	RFL	23,22	1
74	STUART - B	5	SHERMAN	35	GRANT	50	655	G	RFL	24,22	1
75	HILBRND - A	4	SHERMAN	35	GRANT	50	917	G	MSK	11,19	1
76	HILBRND - B	4	SHERMAN	35	GRANT	50	917	G	MSK	11,20	1
77	BUCKLAND - A	5	SHERMAN	35	GRANT	50	1054	G	R/M	8,18	1
78	BUCKLAND - B	5	SHERMAN	35	GRANT	50	1054	G	R/M	9,18	1
79	PEABODY - A	11	PRENTIS	15	GRANT	50	1395	G	MSK	11,22	1
80	PEABODY - B	11	PRENTIS	15	GRANT	50	1395	G	MSK	12,22	1
81	MILLER - A	8	PRENTIS	15	GRANT	50	1255	G	R/M	15,24	1
82	MILLER - B	8	PRENTIS	15	GRANT	50	1255	G	R/M	16,24	1
83	ROUSSEAU - A	11	McCOOK	15	BUELL	20	2222	G	RFL	25, 7	8
84	ROUSSEAU - B										
85	KIRK - A	8	McCOOK	15	BUELL	20	2722	G	RFL	25, 7	8
86	KIRK - B										
87	GIBSON - A	5	McCOOK	15	BUELL	20	2594	G	RFL	25, 7	8
88	GIBSON - B										
89	AMMEN - A	5	NELSON	30	BUELL	20	1528	G	R/M	25, 7	7
90	AMMEN - B										
91	HAZEN - A	9	NELSON	30	BUELL	20	1424	G	R/M	25, 7	8
92	HAZEN - B										
93	BRUCE - A	9	NELSON	30	BUELL	20	1589	R	R/M	25, 7	8
94	BRUCE - B										
95	BOYLE - A	5	CRITTNTN	15	BUELL	20	2179	G	R/M	25, 7	8
96	BOYLE - B										
97	W. SMITH - A	8	CRITTNTN	15	BUELL	20	1462	G	R/M	25, 7	8

UNION ORDER OF BATTLE (cont'd)

UNIT #	NAME	BRIGADE LEADER BONUS	DIVISION	DIVISION LEADER BONUS	CORPS	CORPS LEADER BONUS	MEN	EFF.	WEAPONS	SET UP OR ENTRY SQUARE	TURN OF ENTRY
98	W. SMITH - B										
99	GARFIELD - A	4	WOOD	25	BUELL	20	1500	G	R/M	25, 7	14
100	GARFIELD - B										
101	WAGNER - A	5	WOOD	25	BUELL	20	2000	G	MSK	25, 7	13
102	WAGNER - B										
CAVALRY											
103	1 TENN	12			GRANT		583	R	CRB	11,16	1
104	2/5 TENN	9			GRANT		297	R	CRB	11,17	1
105	4 TENN	9			GRANT		861	R	CRB	20,16	1
106	6 TENN	9			GRANT		626	R	CRB	17,21	1
ARTILLERY											
									# GUNS		
107	TENN ARM				GRANT		256	R	16 S24	25, 8	1
108	TENN ARM				GRANT		160	R	10 SM6	24, 8	1
109	1A TENN				GRANT		160	R	10 SM6	11,15	1
110	1B TENN				GRANT		160	R	10 JRG	13,11	1
111	2 TENN				GRANT		288	R	18 PI0	22, 8	1
112	3 TENN				GRANT		192	R	12 SM6	13, 0	8
113	4 TENN				GRANT		256	R	16 SM6	20,12	1
114	5A TENN				GRANT		192	R	12 SM6	8,16	1
115	5B TENN				GRANT		192	R	12 JRG	11,18	1
116	6 TENN				GRANT		192	R	12 JRG	16,24	1
117	OHIO ARM				BUELL		256	R	16 NI2	25, 7	8
GUNBOATS											
118	LEXINGTON						110	R	4** NG8	27, 0	5
119	TYLER						130	R	5** NG8	28, 0	7

EF = EFFICIENCY **R** = REGULAR **G** = GREEN

* If 13,0 and 12,0 are blocked, these units will instead enter square 21,0.

** The number shown is the maximum each boat could bring to bear against a single target at a time. The U.S.S. Lexington actually carried six guns (four 8-inch Dahlgrens and two 32-pound smooth bores) and the U.S.S. Tyler actually carried eight guns (six 8-inch Dahlgrens and two 32-pound smooth bores). Both boats were converted prewar river steamers.

FIRE AND MELEE STRENGTH MODIFIERS

TARGET LOCATION	FIRE MOD.	MELEE MOD.
Clear	1.00	1.00
Heavy Woods	0.40	0.40
Light Woods	0.70	0.70
Woods/Church	0.70	0.70
Peach Orchard	0.70	0.70
Ravine	0.70	1.30
Stream	0.80	0.80
Swamp	0.80	0.80
Ford/Bridge	1.00	1.00
Higher Elevation	0.70	0.70
Sunken Road	0.50	0.70

FIRING UNIT'S LOCATION	FIRE MOD.	MELEE MOD.
Stream	1.00	0.70
Ford/Bridge	1.00	0.90
Ravine	1.00	0.60
Artillery in Woods	0.70	1.00
All Others	1.00	1.00

SPECIAL CONDITIONS	FIRE MOD.	MELEE MOD.
Target unit is flanked	1.50*	1.50***
Firing unit is disrupted	0.50**	0.50
Firing unit is routed	0.50	0.50
Firing unit out of ammo	0.30**	0.70

MODES	FIRE MOD.	MELEE MOD.
Normal	1.00	1.00
Column	0.30	0.30
Mounted	0.85	2.00
Routed	0.50**	0.50****
Unlimbered	1.00	1.00
Limbered	0.20**	0.50****
Dismounted	0.75	1.00

* During Final Defensive Fire, the modifier is 0.5 for the flanked unit firing.

** May only fire during Final Defensive Fire and with these modifiers.

*** The flanked defender in Melee and Final Defensive Fire has a modifier of 0.50. The flanker has a modifier of 1.50.

**** May only defend in Melee and with this modifier.

The Fire and Melee strength modifiers would support the following examples:

1. A target unit in woods on higher elevation than the firing unit would result in modifier of 0.49 (0.7x0.7) in the Fire Phases and the Melee Phases.

2. A target unit flanked by a firing unit in clear terrain would give the firing unit a 1.5 modifier

in the Fire and Melee Phases. In the Fire Phases, the flanked unit would fire with a 1.0 modifier (if it had a target) but would melee with a 0.5 modifier.

3. An artillery unit in woods firing at a unit in woods would receive a 0.49 (0.7x0.7) modifier.

ADDITIONAL MODIFIERS FOR FIRE AND MELEE

Leader Bonus: Direct Modifier. A leader with bonus of 20 would multiply casualties inflicted by the unit it is with by 1.2.

Target Density: For fire combat, 1% more casualties per 50 men when more than 1000 men are in the target square. 1% less casualties when less than 1000 men. Maximum modifier of 1.4.

Density of Firing Unit's Square (Non-artillery): If over 1000 men are firing from the square, a modifier of 1% per 50 men over this number is subtracted from the firing strength (1200 men = .96 modifier). During melee, this modifier is 1% per 100 extra men for an attacking unit (1200 men = .98 modifier).

Fortification Level: The firing unit is penalized by 10% per level that the target is fortified. A fortification level of 5 would give a modifier of 0.5.

Efficiency: Semi-Direct Modifier. For every two points a unit's efficiency is below 100, its strength is reduced by 1%. Example: A unit with 600 men and an efficiency of 60 would have a strength equal to $600 \times .80$ or 480 men.

Fatigue: Semi-Direct Modifier. Strength is reduced by 1% for every 2 points of fatigue. Fatigue of 20 would give a modifier of .90. Example: A unit with 1000 men and 20 fatigue would have an effective strength of $1000 \times .9$ or 900.

Command Control: Direct Modifier. A unit's strength is multiplied by its command control. Example: A unit with 750 men and a command control of 1.3 would have an effective strength of 975.

Artillerymen: Each gun requires 16 artillerymen to fully support it. When artillery fires, it receives a modifier proportionate to the number of men it has to man its guns. A Union artillery unit with six guns would need 96 men to function fully. If it lost 19 men (20%), the unit's strength would be multiplied 0.8 to determine its effective strength (it would be at 80% of full strength).

Random Modifier: 1.0 to 1.2 modified by the level of play.

Unit Outmaneuvered: Firing Unit's strength is cut in half for that attack.

Successful Attack: Firing Unit's strength is increased by 50% for that attack.

Maximum and Minimum Modifiers: All modifiers are cumulative with a maximum of 2.0 and a minimum of 0.2.

All modifiers are cumulative as shown in the example

A unit firing under the conditions would receive the indicated modifiers (all modifiers are multiplied together).

– Firer has 2000 men in square	= 0.80
– Target in light woods	= 0.70
– Target has 3000 men in square	= 1.40
– Firer in column mode	= 0.30
– Firer has 75 efficiency	= 0.87
– Firer has 15 fatigue	= 0.93
– Firer has leader bonus of 15	= 1.15
– Firer has command control of 1.3	= 1.30
– Random modifier is 1.3	= 1.30
TOTAL	0.28

A unit above with 2000 men would fire with a strength of 560. (With rifles at range one, it would kill 22 to 26 men.)

OPERATION COSTS
TABLE

TERRAIN/ACTION	INF. DIS. CAV.	MTD. CAV.	LIMB. ART.	UNLIMB. ART.
Clear/Peach Orchard	2(3)	1(2)	2(3)	P
Light Woods	3(4)	2(3)	3(4)	P
Heavy Woods	4(6)	4(6)	7(9)	P
Swamp	6(8)	6(8)	P	P
Ravine	3(4)	7(9)	7(9)	P
Ford	3(5)	1(2)	5(7)	P
Bridge	1(5)	1(5)	1(5)	P
Roads [1]	1	1	1	P
Stream	4(6)	1(2)	5(7)	P
SPECIAL ACTIONS	INF. DIS. CAV.	MTD. CAV.	LIMB. ART.	UNLIMB. ART.
Enter higher elevation	+1	+1	+2	P
Change mode to column, mounted, or limbered [4]	2	2	N/A	2
Change mode to normal, dismounted, or unlimbered [3] [5]	4	4	4	N/A
Enter or leave enemy ZOC	+2	+1	+3	P
Move from enemy ZOC to enemy ZOC [2]	+5	+3	+7	P
Fortify	8	8	P	8
Reorganize	2	N/A	N/A	N/A
Melee (attacker)	2	2	P	P
Melee (defender)	2	2	2	2
Fire in fire phase	2	2	P	4

Numbers in parentheses refer to diagonal moves — directions 2, 4, 6, and 8 (1, 3, 7, 9 on the IBM key pad). For the BASIC game, please ignore the numbers and letters printed in blue. ZOC stands for zone of control, which is a wargaming term for the squares next to a unit. P = Prohibited and N/A = Not Applicable.

- Notes:**
- Gunboats pay 1 OP per square.
 - Unit 107 (TENN ARM artillery unit with S24 guns) pays triple movement costs (including elevation).
 - Column or mounted mode road-to-road movement costs 1 operations point (2 operations points to enter a road in a ravine).
 - Operations points to enter Sunken Road in normal or dismounted state are doubled.
 - OP costs are doubled during the night turns.
 - Retreats and Advances have no OP cost.
- [1] Infantry units must be demibrigades (A and B reorganized) to receive road movement benefits.
- [2] In order to be able to move enemy ZOC to ZOC, a unit must be moving into a friendly occupied square.
- [3] Artillery units cannot change mode in a ravine square.
- [4] Units in woods pay 3 OPs to change into these formations. Units pay 2 extra OPs if in an enemy ZOC.
- [5] Units in woods pay 6 OPs to change into these formations. Units pay 2 extra OPs if in an enemy ZOC.

DISRUPTION TABLE

A unit has a chance of being disrupted based on the number of men in the unit and its number of casualties. The chart below gives some examples:

MEN IN UNIT	NO CHANCE OF DISRUPTION	CHANCE WITH 20 LOSSES	CHANCE WITH 40 LOSSES	CHANCE WITH 60 LOSSES	CHANCE WITH 80 LOSSES	CHANCE WITH 100 LOSSES	CHANCE WITH 120 LOSSES
500	less than 7 losses	11%	27%	42%	58%	73%	100%
1000	less than 15 losses	6	21	37	53	68	100
1500	less than 19 losses	1	17	32	48	63	100
2000	less than 26 losses	0	12	27	43	58	100

DISRUPTION RECOVERY TABLE

Recovery from disruption is based on command control and whether or not a unit is in an enemy ZOC.

COMMAND CONTROL	NO ENEMY ZOC	IN ENEMY ZOC
.5	35%	17%
.6	40%	20%
.7	45%	22%
.8	50%	25%
.9	55%	27%
1.0	60%	30%
1.1	65%	32%
1.2	70%	35%
1.3	75%	37%
1.4	80%	40%
1.5	85%	42%

WEAPON/RANGE CASUALTY TABLE

WEAPON TYPE	ABBREV.	RANGE IN SQUARES					
		1	2	3	4-6	7-10	11-15
Musket	MSK	3	0	0	0	0	0
Rifle	RFL	4	2	0	0	0	0
Rifle/Musket	R/M	3	1	0	0	0	0
Rifle/ Henry Repeater	R/H	5	2	0	0	0	0
Rifles/Carbines	R/C	4	1	0	0	0	0
Carbines	CRB	4	1	0	0	0	0
Shotgun	SHG	4	0	0	0	0	0
Pistol	P10	2	0	0	0	2	1
12 lb. Napoleons	NAP	14	4	2	1	0	0
10 lb. Parrott	P1	8	5	4	2	1	0
12 lb. Howitzer	H12	16	2	2	1	0	0
6 lb. Smooth Bore	SM6	8	2	2	1	0	0
James Rifle	JRG	8	5	4	2	1	0
Siege Gun	S24	18	6	4	2	2	1
32 lb. Smooth Bore 8 in. Dahlgren	NG8	20	3	1	1	1	1

The number under the range column corresponding to the proper weapon type is the number of men suffered as casualties per 100 men firing for small arms (the top two on the list) and per one gun for the artillery. The casualties derived here are further modified by various strength/casualty values.

FATIGUE TABLE

ACTION	COST
Fire and Melee Combat	
Infantry and Cavalry	+3
Artillery	+8
Enter clear terrain/ peach orchard	+1
Enter light woods	+1
Enter heavy woods	+2
Enter swamp	+1
Enter ravine	+2
Enter ford/stream/bridge	+1
Enter road-to-road square	+0 or +1 (randomly dependent on efficiency)
Fortify	+15
Per 1 operation point of double-time	+6

EFFICIENCY TABLE

ACTION	COST
Unit moved onto by routing unit	-8
Leader killed in unit	-5
Unit stacked with unit that routs	-15
Unit retreats	-3
Unit causes retreat	+2
Per casualties of 5 men	-1*

* A unit with more than 600 men suffers proportionately less efficiency loss. A unit with 900 men would lose 67% less and a unit with 1200 men would lose 50% less efficiency.

MELEE RESULTS

The attacker's modified strength is divided by the defender's modified strength to determine the odds which govern the losses and retreats from melee. The odds of 2 to 1 are considered the break-even point. The defender or attacker (not both) may retreat according to the chart below. The defender is checked first and then the attacker (provided the defender does not retreat).

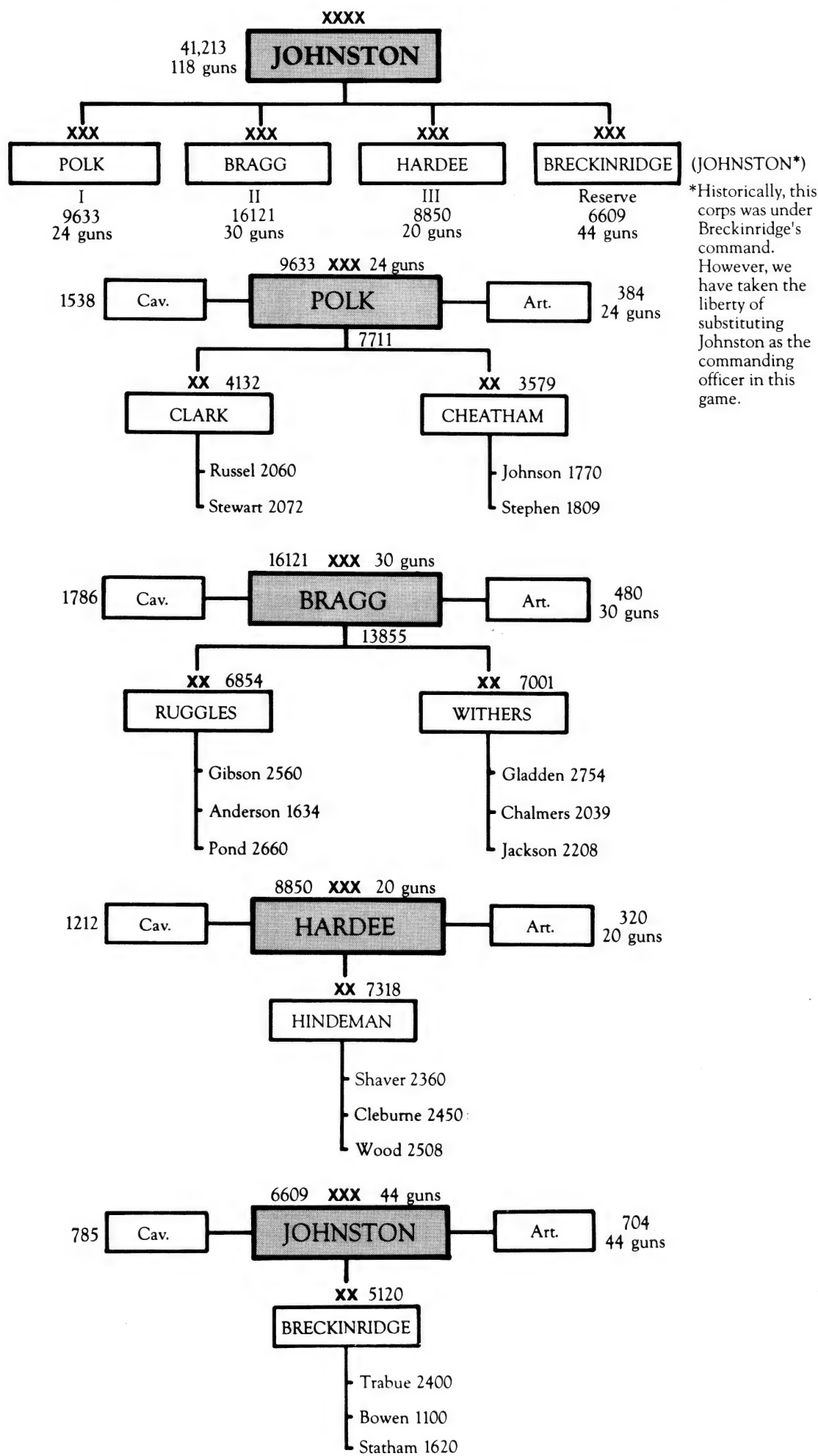
ODDS	% CHANCE ATTACKER RETREAT	% CHANCE DEFENDER RETREAT
<0.3	60	10
0.3 to 0.49	50	20
0.5 to 0.99	40	30
1.0 to 1.99	30	40
2.0 to 2.99	20	50
3.0 to 3.99	0	60
4.0 to 4.99	0	70
5+	0	80

RALLY

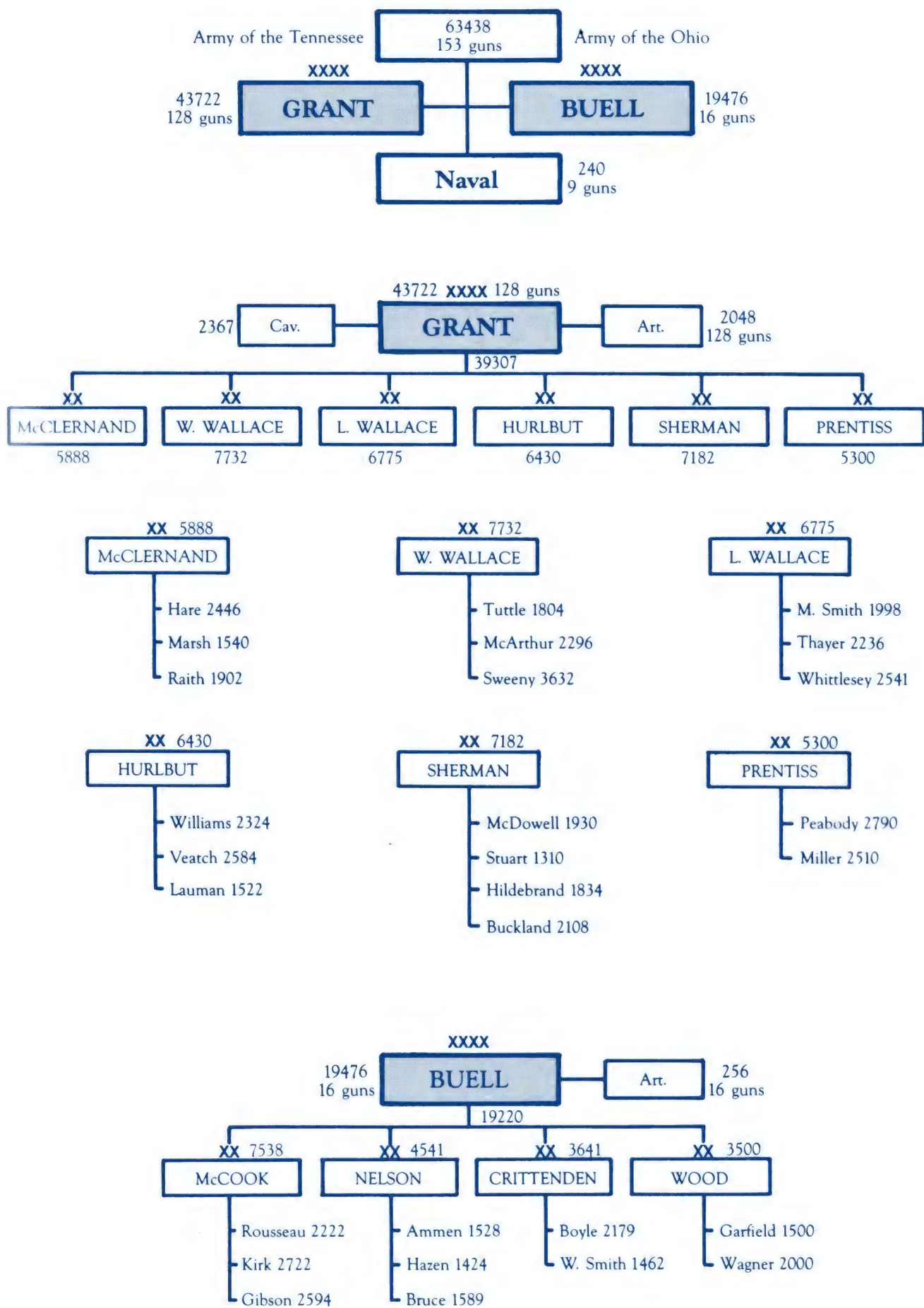
Generally speaking, the higher the morale and command control a unit has, the greater its chances to rally. See chart below for examples of percentages to rally. (NOTE: A unit which begins the game with an EFFICIENCY of less than 40 will never rally.)

COMMAND CONTROL	M O R A L E			
	31	40	60	80
.5	42%	47%	59%	71%
.6	43%	48%	60%	72%
.7	44%	49%	61%	73%
.8	45%	50%	62%	74%
.9	46%	51%	63%	75%
1.0	47%	52%	64%	76%
1.1	48%	53%	65%	77%
1.2	49%	54%	66%	78%
1.3	50%	55%	67%	79%
1.4	51%	56%	68%	80%
1.5	52%	57%	69%	81%

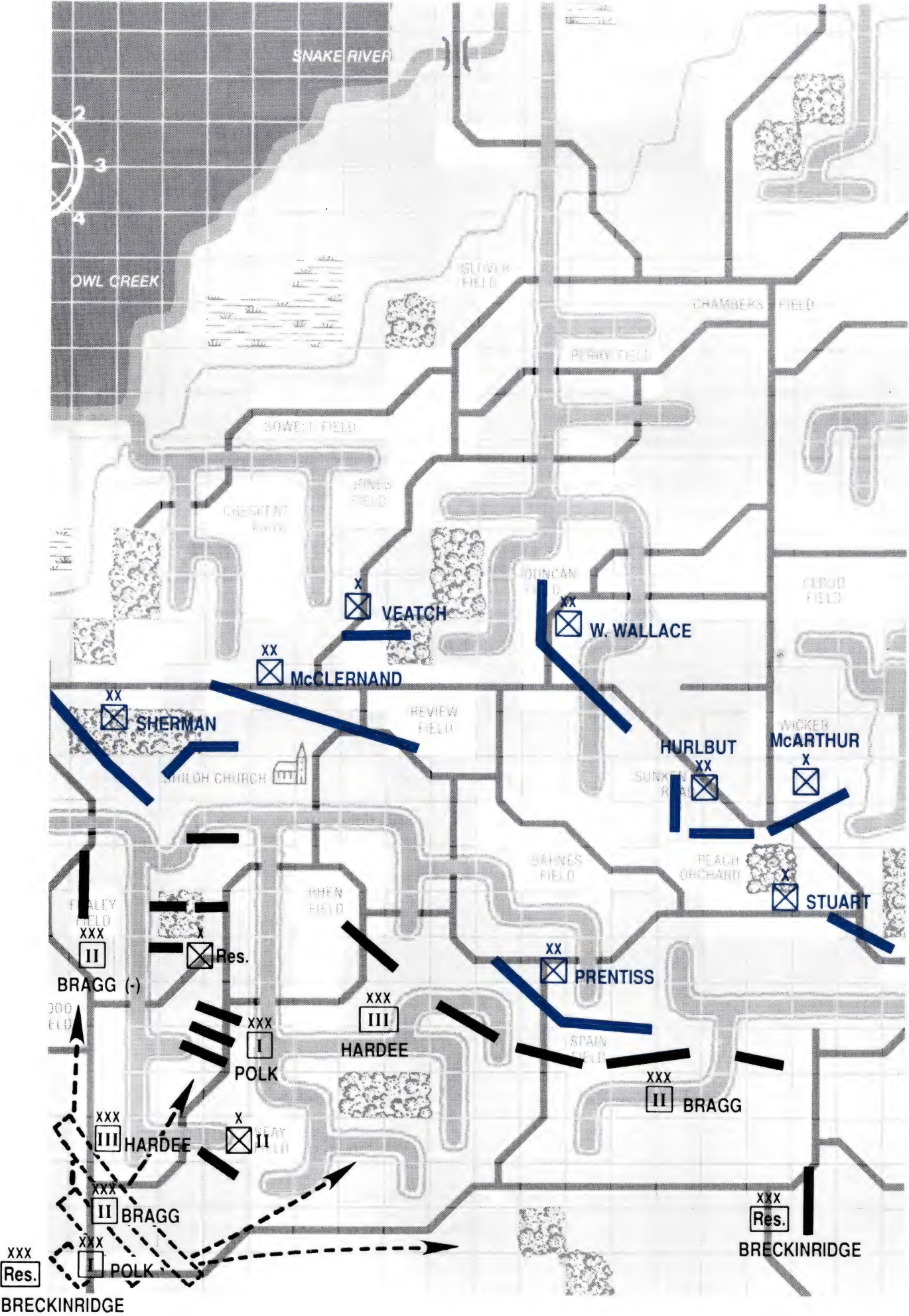
CONFEDERATE ORGANIZATIONAL CHART



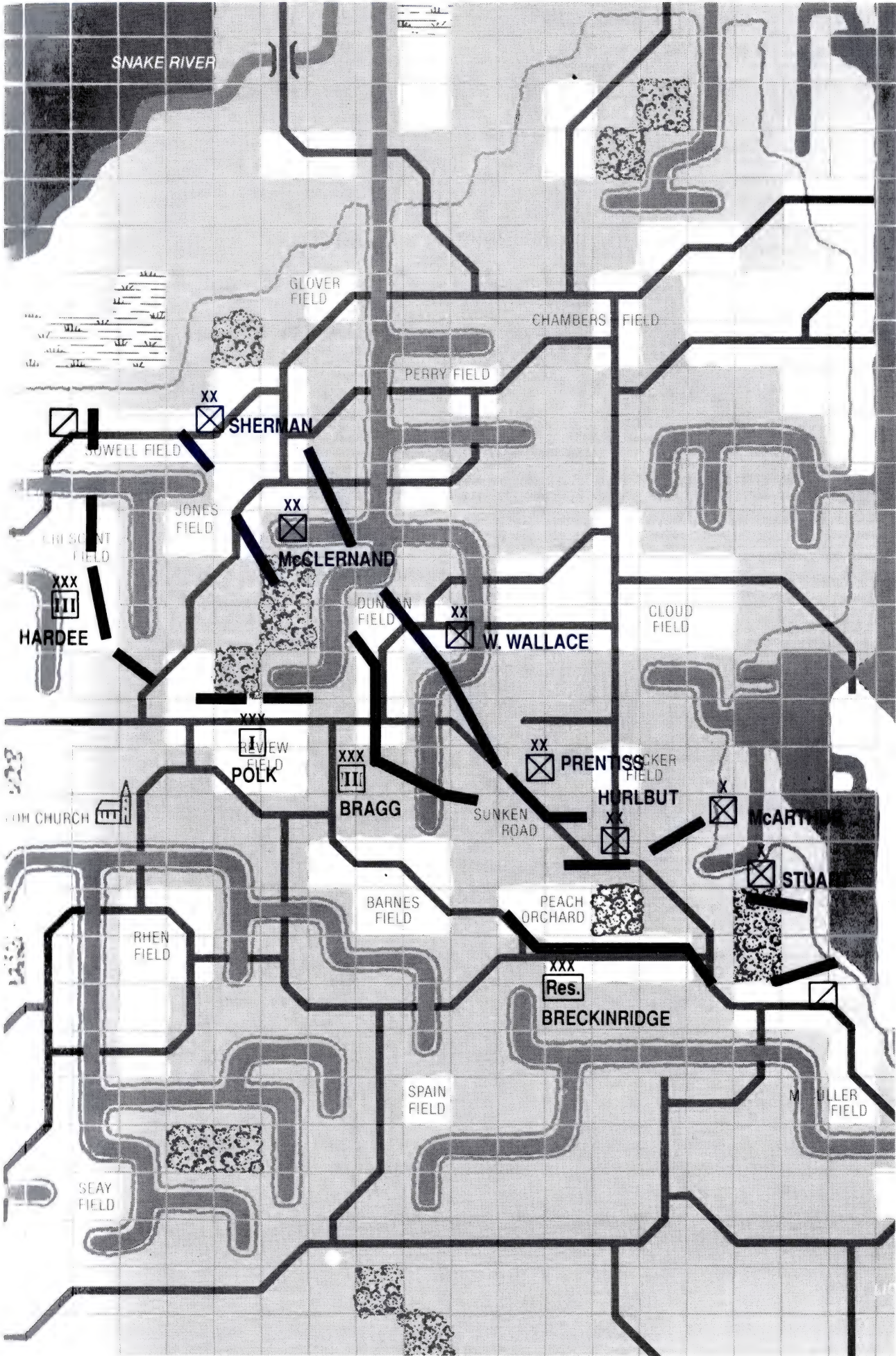
UNION ORGANIZATIONAL CHART



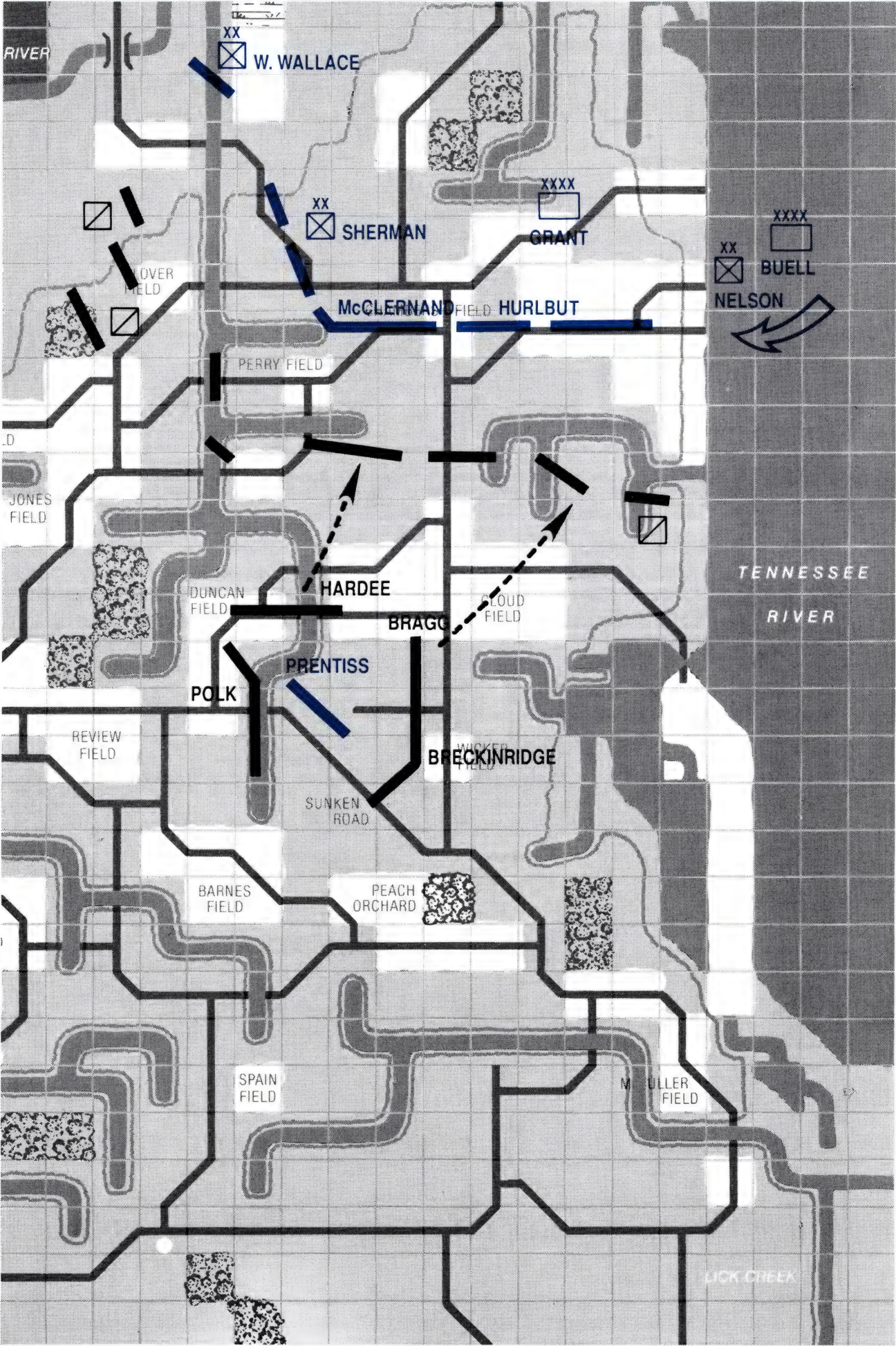
EARLY MORNING, APRIL 6, 1862 (about 9AM)



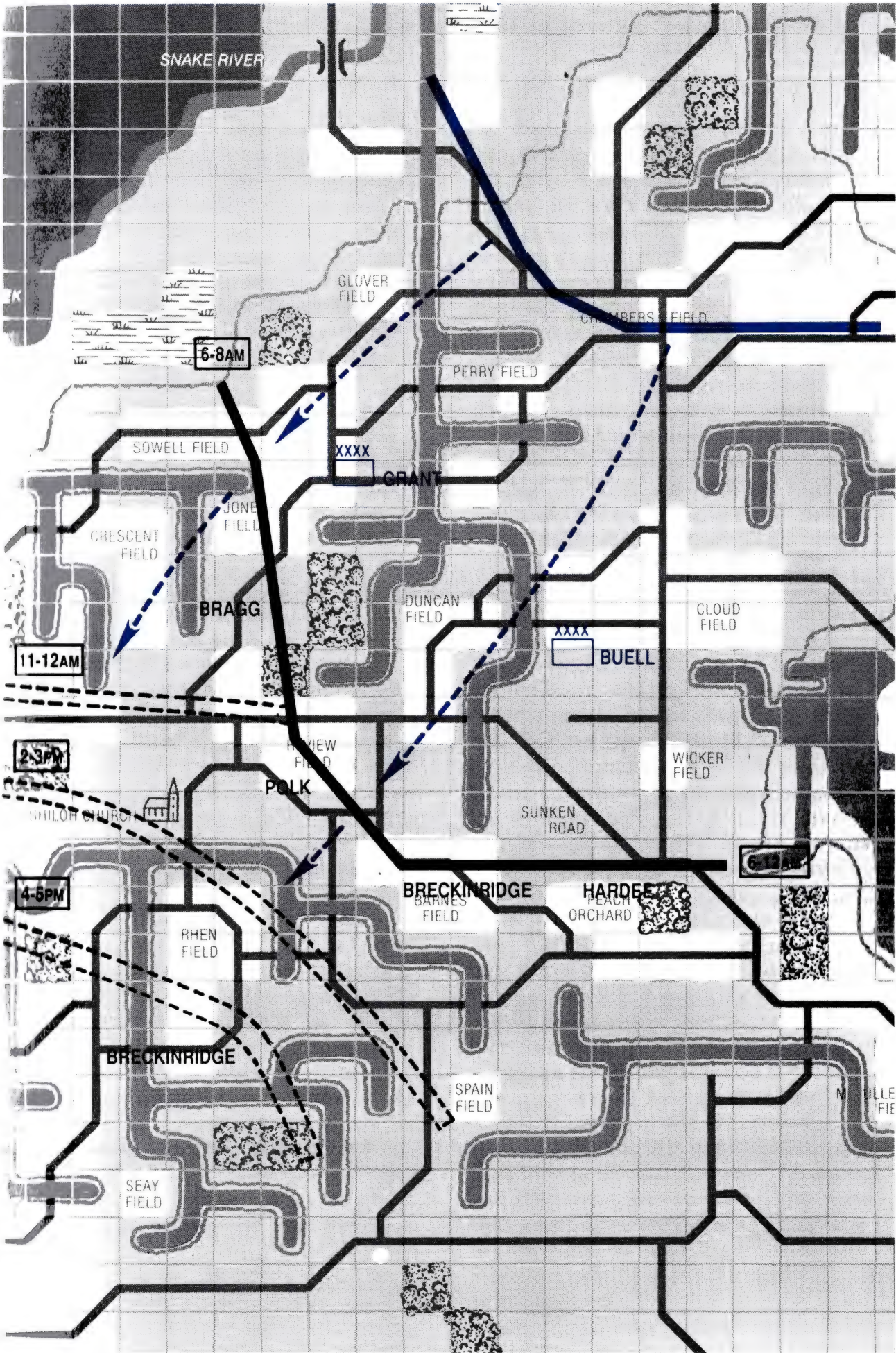
NOON, APRIL 6, 1862



AFTERNOON TO END OF DAY, APRIL 6, 1862



SECOND DAY, APRIL 6, 1862



SHILOH: Amateur Night in Tennessee

By Robert S. Billings

Major James E. Powell of the 25th Missouri moved carefully between the trees, peering ahead anxiously through the pre-dawn darkness. He heard the rustle and snapping of the five companies marching behind him. He didn't like this stumbling blindly about in the dark looking for an enemy apparently no officer except himself and Colonel Peabody believed existed — at least short of the Confederate encampment more than twenty miles away at Corinth, Mississippi.

Major Powell didn't like a lot of things he'd been seeing lately. Like those button-clad soldiers he'd noticed watching his whole division pass in review on their drill field the previous afternoon.

He had managed to convince the division commander, Brig. Gen. Benjamin M. Prentiss, to send out a patrol. The commander of the patrol reported they'd moved out three miles and found nothing. That was enough to convince the general. Most of the generals were political appointees, new to the military and they didn't want to look bad. Nothing made a new general look foolish so quickly as acting like a nervous Nellie over every false report of an "enemy" nearby.

General William T. Sherman had learned this to his sorrow back in Kentucky when he'd thought he was facing an enemy of countless thousands. He'd lost his command for a time, and the newspapers were making snide references to his "insanity." He was finally back commanding a newly formed division — but he sure wasn't doing any over-reacting to reports of an enemy presence. Recently a subordinate officer had made ready a patrol to investigate a report of hundreds of the enemy with

two pieces of artillery near the Union camps. Sherman had found out about the patrol and refused to let it go out. Then there was the matter of Colonel Jesse J. Appler of the 53rd Ohio. Another political appointee without military training or knowledge, he'd turned out his entire regiment when some of his men said they were fired on by a whole line of Confederate pickets. Appler wouldn't try that again soon. His messenger bearing a warning to Sherman returned just in time to shout out the general's reply so the whole regiment heard it: "General Sherman says take your damned regiment back to Ohio." That might have made General Sherman feel mighty big, and Colonel Appler pretty small — but it didn't tend to make other officers feel diligent about active patrolling.

Well, Appler was pretty old for starting out as an inexperienced regimental commander — nobody would listen to him. But fortunately Major Powell had a brigade commander in whom he had a lot more confidence. He was Colonel Everett Peabody — a tall, impressive man of some accomplishments. He was no West Pointer, but a Harvard-educated engineer, used to making key decisions while building railroads in the West. He might be fairly new to the military game, but he trusted his own judgment, didn't mind speaking up when a superior was wrong, and had the guts to carry out what he felt had to be done. And if he had trouble getting a needed action approved, he'd go ahead and do it first, then worry about the approval. An army always had lots of generals trying hard to look like unconcerned veterans, and even more nervous and probably incompetent Applers. But if an army was ever going to succeed, there had to be a few like Peabody around to make up for all the rest.

Colonel Peabody went straight to General Prentiss and told him the army was in danger of attack and had damn well better be put in a prepared state. The Colonel wanted to put some artillery in position to defend the camp and to ready the entire division for an imminent attack. The General scoffed at the whole idea. Peabody went back to his brigade cursing the stupidity of some high-ranking officers.

A little scoffing would intimidate an Appler, but not Peabody. He got together with some of his officers and told them he was going to act on his own — to hell with sitting there stupidly just because some idiot with a general's rank didn't have sense enough to put two and two together. Peabody determined to send out a very early patrol before light the next day. If his camp was going to be attacked, he'd damn well have some warning of it in time to do something about it.

Thus it was that Major Powell had been sent out with five companies at three o'clock to find what the hell was out there. General Prentiss could like it or not, but Major Powell was determined to give Peabody a genuine reconnaissance and an accurate report. If there really was an enemy out there, by God he'd find it in time to get the army out of bed before the attack came.

Suddenly, as dawn began to lighten the sky, one small detachment of Powell's men saw a Confederate horseman just ahead. They tried to pull back and join their main body. Then they heard three quick shots and the sound of horsemen retreating.

Were these part of an isolated patrol — or the vanguard of a vast army? Powell had to find out.

Combining his separate groups into a skirmish line, Powell sent it forward into the field that loomed ahead in the dim light of dawn.

Again they were fired on — this time by a small group of riflemen who also had to retreat before them. Still the Union troops marched straight ahead into the slowly lightening field.

Once again firing suddenly broke out. It was only another small group of Confederate pickets who quickly withdrew. So Powell's five companies plodded on toward a knoll they could just make out in the gray light of dawn.

Suddenly they saw, waiting for them to close the range, a long line of kneeling riflemen. Powell's men immediately began firing. The return volley of the kneeling men hit them like a sudden furnace blast. The battle at last had begun.

Shiloh was a battle of accidents and stupidities; of wonderful might-have-been's and calamitous almost-were's; it was most of all a battle of terrible ironies. Perhaps the greatest irony of all was that this horrible blood-letting, the largest and most costly battle up to that time in American history, was fought around and named after a small wooden church at "Shiloh" — whose worshippers had been inspired to call it by the Biblical name meaning "place of peace." And when those kneeling men released their thunderous volley as prelude to the massive slaughter, the day just beginning was Sunday, April 6, 1862.

To understand the battle — if "understanding" can ever apply to such a confusing series of events — one must realize that both armies there were made up of almost totally inexperienced, and even untrained men. Many soldiers had never fired a rifle before — in fact some had just been issued their weapons. There were a few officers on each side who had fought in battle before — but many who had not. And the veteran leaders were most often men who had led small groups in the Mexican war and had little knowledge of how to fight such a large battle as this would become. So they would all have to learn together, from each other, and the price of the lesson would be thousands of dead and dying.

The war was starting into its second year and the situation in the West had suddenly become critical. Up until this time there had been a number of small actions, but nothing to equal what was about to occur. After some preliminary sparring, it looked as if Missouri would be held mainly by the Union, while Kentucky and Tennessee would remain contested ground. In this wild, rough country, routes for transporting men and material were key to control. And that meant the rivers, especially the Mississippi and the Tennessee which mainly ran north-south, and the railroads, the most important of which was the Memphis & Charleston, running east-west and serving as the "vertebral column" of the Confederacy. Realizing the importance of the rivers, the South had established strong forts along the Mississippi (at Vicksburg and Island Number 10), the Tennessee (at Fort Henry) and the Cumberland (at Fort Donelson). It looked like a long-term stalemate.

And then General Ulysses S. Grant had thrown all the pieces up into the air by rather suddenly (to the surprise of his theater commander General Henry Halleck) capturing both Fort Henry and Fort Donelson.

Southern strategists were shocked. With the north-south river routes open for Union gunboats to run up and down at will, both Kentucky and Tennessee were now apparently incapable of being defended. Perhaps more important, the very spinal column of the Rebel state was in danger of being severed. The east-west Memphis & Charleston Railroad ran roughly parallel to the southern border of Tennessee River. It passed through Corinth, and not far from the Mississippi. Here it intersected the key north-south Mobile & Ohio Railroad. Southern leaders were horrified to see that the North could run its army, protected by gunboats, up the river to within a few miles of Corinth. From there, a short overland march would let it cut the main east-west communications of the Confederacy. Something would have to be done — and done fast.

The first thing was to combine the scattered remnants of Rebel forces in the West. Word went out to General Albert Sidney Johnston, General P.T. Beauregard, Maj. Gen. Leonidas Polk — to nearly everyone except the defenders left at Island Number 10 — to march immediately for Corinth. Precious new weapons just arrived through the blockade were hurriedly sent west. And the accompanying message was desperate — stop the Northern forces before they reach Corinth.

And so thousands of men and weapons and many of the most highly valued Southern leaders were converging on Corinth, fully aware that they must soon recover in one great battle all that had been lost when Forts Henry and Donelson had fallen.

The North too realized how crucial the operations of the next few weeks had become. Grant's army of six divisions was sent up the Tennessee River with escorting gunboats to select a base of operations near Corinth. Then Maj. Gen. Don Carlos Buell was ordered to march his army, operating on the Cumberland around Nashville, overland to join with Grant on the Tennessee. Grant let Sherman pick the point of conjunction, and he chose Pittsburg Landing. Now it was to be a race to see who would collect his scattered armies first — to use against an enemy only partially ready.

General Albert Sidney Johnston had managed to get most of his men there first. Grant waited at Pittsburg for Buell's army to join him. The heavy rains had made the Tennessee country — rough and hilly, cut ravines, crossed by swollen rivers — a miserable area to move troops through. And military engineering this early in the war had not developed very far; Buell's men had been held up for nearly a week by one unbridged river they finally waded across.

Johnston was aware Buell was on the way and determined to attack before he could join Grant. Without Buell the Confederates would be at least equal in size

Grant's army (both with about 45,000 men). If Buell ever got there with his men, the Union forces would have an overwhelming advantage in numbers. Johnston had made the right decision. The question was, could he carry it out in time?

The Union troops were not the only ones to behave like rank amateurs. Johnston's troops managed to get so fouled up in their approach march that the whole operation had to be postponed. Maj. Gen. William Hardee's troops, who were to attack in the first wave, could not get in position to attack on April 4 as originally scheduled. They finally got up and ready on the 5th. But the supporting troops couldn't get up in time and Hardee's men stood most of the day waiting for them. When they began to arrive it was too late in the day to start the attack. So another precious day was lost — and Brig. Gen. William Nelson's troops, Buell's leading division, was reported closing fast on Pittsburg Landing and could arrive the next day. The Southern margin for victory was rapidly decreasing.

In fact, after the all-day delay while Hardee's men were already in position, Beauregard (whom Johnston had made second-in-command and his main adviser) argued that the attack should be called off because there was no longer a chance for the complete surprise they had counted on. But Johnston was determined to attack. So the troops were put in their assigned positions well before daylight.

The Union troops had thus been given ample warning signs of an impending attack — but it came as a complete surprise anyway. For despite the fact that both armies had about 80 percent inexperienced troops who couldn't seem to do anything quietly and were perpetually firing off their weapons just to "make sure they're still working," the Northern commanders refused to consider the possibility of an attack on their camps. And worse, there had been absolutely no preparations for defense: no digging-in, no building of even tem-

porary fortifications. And the artillery was not even in position where it could provide defensive fires.

Finally, patrol activity had been not only remarkably limited but, in some cases, actually forbidden. So the odds swung back to the Confederates. Perhaps they could catch the Union army still in bed asleep and win such a victory that all previous Northern accomplishments would pale in comparison.

That was the case — until Colonel Everett Peabody had decided to ignore instructions from his commanders and follow his own judgement. It was lucky for the North that he did.

So now when the Confederates lined up and began to close in on the Union camps in the pre-dawn dark, they ran into Major Powell's little force of five infantry companies. Soon the rattle of the musketry was heard by the sleepy-eyed Union soldiers getting ready to face another dull day in camp. Messengers came back with word of what was happening — and soon the wounded began to flow back from Powell's force.

Even now the warnings were not given much attention by all the commanders. Worried they might be observed "overreacting," they were still trying to play the role of steely-nerved veterans.

Not Colonel Peabody. He got all his available men into formation and marched them out where they could make a stand while other units were still forming.

General Prentiss, angry his instructions hadn't been followed, and still not realizing the terrible danger the army was in, came riding up and harshly rebuked Peabody for "bringing on an action" without authority to do so. The general said he would hold Peabody "responsible." Peabody told him he always took responsibility for his own actions and turned away in disgust to prepare his men for their coming trial.

Major Powell's men had been having quite a time in a continuing firefight with skirmishers sent out to screen the main attack formations of the Confederates. It had started around five o'clock. The men from the five companies had held their own but could not get far enough forward to see the thousands of men forming behind the screen of skirmishers — some a mere quarter-mile away. Finally Powell seeing the enemy skirmishers being reinforced and cavalry working around his flanks, decided he had enough evidence and it was time to pull back.

On his way back to camp, Powell met Colonel David Moore with part of the 21st Missouri sent out as reinforcements. The colonel insisted Major Powell and his wounded men join the new group, and together they went toward to forming Confederates. Meanwhile, a lieutenant sent back to report what was happening had convinced a still reluctant General Prentiss to dispatch Lieutenant Colonel Woodyard with another group of reinforcements. It was nearly 7:00 a.m. when this third group reached the others.

While moving forward, the combined forces were struck suddenly by a withering fire. Several men and officers went down. Powell thought it was time to pull his men out. The first group of reinforcements also withdrew and headed back to camp. But Woodyard's men stopped on a rise and continued firing.

It was now 7:15 a.m. and all indications were that something big was about to happen — though no one had yet seen any large Confederate units.

And then — there they were! Col. R. G. Shaver's Confederate brigade came marching steadily across the open field to their front. A few Federal rifles fired — and proved inexperience was not confined to the Union ranks. These few shots threw the brigade of Confederates into such disorder it took several minutes to straighten them out. But then they came on again, and this time even Colonel Woodyard decided it was time to get out.

Only these small-unit actions had averted a complete surprise. For two hours now the sound of firing had been heard in the camps. While there had been no immediate formation of all available troops, Colonel Peabody, as noted previously, had readied his brigade for action.

Peabody, moving his brigade forward, first met Major Powell and his retreating men. He kept on and found Lieutenant Colonel Woodyard's men retreating toward him. Forming a quarter-mile-wide firing line with this combined force, Peabody waited on a swell of ground with a ravine in front of him. Then over the ridge, less than a hundred yards away, came the crowded ranks of Shaver's men.

The Union force, though outnumbered, fired rapidly and forced the attacking ranks to stop for a stand-up firefight. Back and forth the volleys were traded. Then two regiments of Wood's brigade, on Shaver's left, appeared — but formed so that Peabody's men could fire into their flank. The two Confederate regiments, also containing many new recruits, fled wildly at the Union volley. This flight infected the regiment on the left of Shaver's brigade, and their eight hundred men were soon pounding to the rear. Again it took several minutes before the officers were able to restore some kind of order. It was thus about 8:15 a.m. when this section of the Confederate line was given the order to fix bayonets and charge. This time they swarmed in on both flanks of Peabody's lone brigade and swept it from the field. Peabody had finally been conquered — but it was 8:30 a.m. and precious time had been saved for other units to form.

Somewhat to the east of Peabody's men, Prentiss had finally got Colonel Madison Miller's brigade formed. They waited, augmented by Peabody's 16th Wisconsin, whose camp had been too far away for them to march out with their own brigade. Two batteries of artillery added needed strength to the line.

The Confederate attack wasn't long in coming. Brig. Gen. A.H. Gladden's and Brig. Gen. J. Chalmers' brigades were advancing some distance east of Shaver's. Getting tangled up in a left-wheel movement, Gladden's regiments were struck by volleys from the solid Union formation. This stopped the attack and a firefight ensued. Prentiss had to keep moving regiments rearward to keep a semblance of a defensive line. The attack was being contained — but the overwhelming numbers of Confederates were threatening at any moment to break through and around this three-thousand-man impediment in their path.

Meanwhile, Peabody's line had collapsed and men were retreating through their camps, some still putting up resistance, some merely drifting rearward on the road to Pittsburg Landing. Peabody himself, already wounded four times, was desperately trying to hold the remnants of his men together. He rode through the camp looking for General Prentiss. Before he could find him a fifth shot struck him in the head — finally killing the man who, more than any other officer, had kept the Union forces from being surprised in their beds.

With Peabody's line gone on the right and a whole Confederate brigade (Chalmers') coming up on the left flank, Prentiss' Second Brigade began to break up as well. Within minutes, pieces of regiments were rushing back through their own camps, with only a few men keeping any kind of regimental organization.

It was now 9:00 a.m. Prentiss' division no longer existed as a coherent force. Amateurish mistakes had placed it in a hopeless position and made its destruction nearly certain. One entire regiment, newly arrived, had been marched out to form in battle line and wait — with empty guns. No one had thought to issue them ammunition first.

Yet the division's short but desperate fight, flawed as it was, had given substance to Peabody's courageous personal initiative. The Union army now had a chance to survive the hours of hard fighting that lay ahead.

A look at the overall dispositions of both armies further confirms the amateurish nature of the commands. The Confederates were coming in three waves: the first under General Hardee, the second under Maj. Gen. Braxton Bragg, the third under General Polk. A small reserve was kept under Brig. Gen. John C. Breckinridge. However, rather than having each commander responsible for a segment of the battlefield so he could keep some control over his units, each wave covered nearly the entire front. Thus it was almost impossible for any commander to exert control over his own troops during the battle. In fact, this soon became so obvious that in the middle of the battle the plan had to be changed and each commander was given responsibility for a small part of the front. This meant that commands were hopelessly jumbled and brigades went in under one leader and then were shifted to another. Undoubtedly this jumbled command structure was at least partly the cause of the Confederate forces missing so many golden opportunities during the day.

But the Northern troops also were stuck with a colossal stupidity in their troop arrangement. The furthest divisions from Pittsburg Landing were Sherman's on the right and Prentiss' on the left. Behind these were Maj. Gen. John McClellan's on the right and Brig. Gen. Stephen Hurlbut's on the left. Brig. Gen. W.H.L. Wallace's division was closest to the headquarters and supply point at Pittsburg Landing. The sixth division under Maj. Gen. Lew Wallace was five miles away at Crump's Landing. Ironically, then, the new, green divisions were the most exposed to enemy attack and would be hit first — while those soldiers with at least some experience would get into the fight only later. This helps to explain why two divisions first attacked had so many regiments completely shattered, with their demoralized men spending the rest of the battle cowering in fear at Pittsburg Landing.

While General Sherman had no officer with Peabody's initiative, he did get some warning of the attack before it hit his camps. Colonel Jesse Appler, an elderly novice leading the 53rd Ohio, had been worried sick about what might be about to happen. He had been hearing firing for some time. He had earlier sent out a small group of men to investigate. Now they returned with alarming reports of heavy firing and felt sure an attack was about to hit them. Still Appler was unsure: he had been insulted by Sherman the last time he had tried to warn him. Then a wounded man from Major Powell's engagement came back through Appler's area shouting that the Rebels were coming.

Colonel Appler decided to act. The drummer's long roll called out his regiment and messengers sped to warn Sherman as well as the brigade commander. Then the regiment was marched out to take the position in front of its camp. Looking up and seeing the ranks of Southern soldiers marching toward them, Appler quickly led his exposed regiment back through its camp and took position behind it.

It was now about 7 a.m. and General Sherman, thinking perhaps he had better investigate these reports after all, rode up with members of his staff. While Sherman was gazing off to his left through his field glass, a group of Confederate skirmishers suddenly appeared to his right and cut loose with their muskets. The volley killed Sherman's orderly and the group of officers scattered.

Although scoffing at all previous warnings, Sherman was in a moment convinced. Shouting to Appler to hold his position at all hazards, the general dashed away to get support.

Appler and his men could clearly make out, as far as they could see, long lines of Confederate troops approaching. Now was the time for heroic stands. But this amateur was not the man for it. He lay down behind a log, his face a ghastly white — then suddenly jumped up, shouted to his men to retreat and save themselves, and ran for the rear as hard

as he could. Most of his regiment immediately followed and was lost from action for the rest of the battle.

Sherman had four brigades — but one, Col. David Stuart's, had been posted way over past Prentiss' men to cover the army's left flank all the way to the river. Sherman would have to leave him to his own troubles — which would soon be bad enough. But that left Sherman to cover the right flank with only three brigades: Col. J. Hildebrand's, Col. R.P. Buckland's, and Col. J.A. McDowell's, in that order from left to right. These brigades were quickly put in formation and marched out.

Hildebrand, with only two regiments after Appler's had fled, soon found himself busily engaged and his line starting to break up. Despite all he could do, most of his men were soon on the way to the rear.

Buckland had a good position behind a ravine and did considerable damage to the Confederates as they tried to cross it. Artillery support backed the Union's stubborn defense in this spot. Here a spirited fight developed which continued until after 8:30 a.m.

To Buckland's right and serving as the extreme right flank of the army was General McDowell's brigade. He had to move one regiment to his left to cover a gap between his men and Buckland's, but except for this one regiment, his troops had not been engaged.

Then, as Hildebrand's brigade began to break up on the division's left, Buckland and McDowell had to be ordered to pull back to keep them from being flanked. The order was much easier to give than to execute.

First, one of McDowell's regimental commanders was so drunk he marched back only half of his troops. Then a battery of guns was ordered to shift from the right flank of the division to the left. It went racing up the Purdy road just as Buckland's troops had withdrawn and were lined up there. To add to the con-

fusion, a large mob from Hildebrand's disintegrating regiments at this moment came fleeing down the road in the opposite direction. Caught with wildly running horses one way and fleeing soldiers the other, Buckland's brigade was a mass of absolute confusion. Then with Confederates attacking from its front, large numbers from Buckland's brigade were carried along in the wild retreat.

But Sherman, now that he was in a fight, was in it all the way. He already had had one horse shot from under him and had been shot in the hand himself. But he was cool and decisive. He stopped the charging battery and ordered it into position right where it was. But as it began to obey the order, its battery commander was shot and the entire battery fled in panic — leaving the five guns unattended. As Sherman struggled to regain some order, his second horse was shot from under him. Catching a loose artillery horse, he mounted it — and within twenty minutes that one was shot as well. In a few minutes he had lost most of his division — Hildebrand's and most of Buckland's was gone; only McDowell's appeared in any order.

Here was a chance for the Confederates to wrap up their victory and recapture control of the West. Prentiss' division was in the process of disintegrating. But the amateur spirit was loose in more than one army. Many of the Southern soldiers, entering the captured Federal camps, were amazed at the sudden wealth displayed all around them — food in quantities they had never seen in their own army, fancy uniforms, blankets, tents loaded with treasures such as some of the men had never seen. Little wonder, then, that many of the Rebels were soon leaving their formations to roam about the camps in search of plunder. The good fortune of the Southern army seemed to be breaking up Confederate units as badly as fear and panic was destroying Union formations.

It is difficult to realize that the Union troops had been so long engaged in a great battle without any contact with

their commander — but such was the case. Maj. Gen. Grant had been staying at his headquarters in Savannah, about ten miles down river from Pittsburg Landing. Buell's troops were due to arrive there soon, and he wanted to be on hand to see that they were transported quickly upriver to join his army. In fact, one brigade of Nelson's division had already arrived and the rest were due shortly. But the sound of heavy firing from the direction of Pittsburg Landing had disturbed Grant at breakfast. Leaving word for Nelson's men to be marched overland to a spot opposite Pittsburg Landing, Grant boarded a boat and headed for the sound of the firing. As he passed Crump's Landing he shouted over to Lew Wallace to ready his division to march to the battlefield and wait for an order to start. Then he continued upriver and quickly disembarked at Pittsburg Landing. Sending word to Wallace to start immediately, he went directly to the front, where he conferred with all his field commanders, instructing them to hold on until Lew Wallace appeared to bolster their position with his seven thousand fresh troops.

Although Grant never seemed dismayed or lacking in confidence of ultimate victory, the prospects then must have looked very grim indeed. His organizations in contact with the enemy were breaking up and a huge mob of stragglers were surrounding the landing area — impervious to pleas or commands to reform. Grant had been making amateurish mistakes in his failure to prepare his army for defense. So now he was going to have to become very fast in the true test of battle leadership — restoring a hopeless situation while under fire.

Only on the extreme left of the Union line had there been no debacle. There Sherman's detached brigade under Colonel Stuart was by itself supposed to hold back any attack close to the river. This was an important area — for success here for the Confederates would let them go by the shortest route to the

Pittsburg Landing area, thereby cutting off any Union avenue of escape and assuring the complete destruction of Grant's forces.

It is clear the Confederate commander realized this — but there is no evidence in the battle orders that the Confederate right flank action was properly planned. First, there was no strong initial force directed toward this area, and second, this was the section where the Rebels delayed their attack longest.

It was only after Prentiss' camps had been overrun that troops were sent to the right flank — and it was nearly 11 a.m. before Chalmers' brigade got into position to attack. As if to prove that lack of professional skill was equally apportioned on this battlefield, when the 52nd Tennessee were fired on by a few Union skirmishers, almost the entire regiment broke and ran, refusing to reform for the disgusted Chalmers.

Then it was the Union's turn. Officers of one of Stuart's regiments, in trying to perform a turning movement, soon reduced their formation to a confused, tangled mass of bodies — which were now racing toward the rear. Stuart just managed to stop them after two hundred yards. Then as Chalmers' troops drew closer, another regiment simply took off running and was not seen again in the course of the day. One regiment, the 54th Ohio, did stand and fight. But with the help of well-positioned Confederate artillery, Chalmers finally drove even this group back. But now, with the way open to strike directly for the Landing, the Confederate troops lost a full half-hour before continuing the attack.

Another Confederate brigade, Jackson's was attacking on Chalmers' left. The regiment it would have faced was the one that fled before the fighting really started. Only one detached company of skirmishers remained as a fighting force — and it did put up a hard fight before all were killed or captured. A small group of the 71st that had not disappeared with its colonel put up a strong rear-guard action before it too was overwhelmed.

But the small actions of little groups of men were using up precious minutes and taking some of the steam out of the Confederate attack. And Union reinforcements were at hand. Brig. Gen. John McArthur's brigade (of W.H.L. Wallace's division) had just come up on Stuart's left. Confronted with three new regiments and some extremely rough terrain, the Confederates did little beyond occasional sniping. So for two hours the determination of small parts of a few regiments had held Grant's left flank — though they threatened to collapse at any moment.

The center of the Union line (where most of Prentiss' regiments had disintegrated and flowed rearward) was helped by two factors: Hurlbut's division had earlier been requested to send help to Sherman, and Col. James Veatch's brigade was immediately dispatched to the army's right. His other two brigades were formed and marched until they could see the Confederates coming behind Prentiss' retreating men. The two brigades were just in the right place at the right time. They were able to check the Confederates after the break-up of Prentiss' division, and a new line began to build up close to the Hamburg-Purdy road. Then when Chalmers' and Brig. Gen. John K. Jackson's brigades were sent on their long march to attack the right flank, pressure was suddenly eased in this central sector, and there was little time to get a defensive line ready.

This line was made up of the two brigades from Hurlbut's division on the left and two newly arrived brigades from W.H.L. Wallace's division on the right. Unfortunately there was a considerable gap between the two forces — but even here things fell just right for the Union army. A small group of Prentiss' troops had been salvaged from the rout — probably less than a regiment in size. But then there appeared the 23rd Missouri, a new regiment which had just been assigned to Prentiss but hadn't arrived in time for the early morning fighting. Eight hundred strong, this unit more than doubled his scratch force.

Prentiss' small reorganized force was just enough to close the gap between Hurlbut on the left and W.H.L. Wallace on the right. Also, the line was bolstered in places by a number of artillery batteries. Furthermore, a good part of the line was along a "sunken road" — which gave some protection to many of the men stationed there. This position was extremely important to the Union cause — for in spite of desperate fighting against many attacks, they were able to hold out here for the rest of the morning and much of the afternoon. The position was so "hot" for attacking Confederates that it was known ever afterward as the "Hornet's Nest."

So there came a curious suspension of the disaster falling on the Federal troops. Almost knocked out, both flanks about to cave in, with thousands of demoralized soldiers cowering at Pittsburg Landing, and with the only reserve (Lew Wallace's division) off wandering somewhere hours away — the Federal "line" nevertheless had somehow stumbled into a semblance of an army holding a defensive position. It was perhaps part illusion and could crumble at a dozen places at any minute — but it was there.

It was there partly because of the command faults of the Confederates mentioned earlier. A determined, directing hand, mustering its forces to hit the most promising spot, could have made all the difference.

But that hand was not there. Johnston, in overall command, was forward with attacking units. And while he was directing troops in the hottest part of the field, the Union troops received another badly needed assist. About 2 in the afternoon Johnston was wounded — a bullet in the leg that he didn't even notice at first. But it was a "bleeder" — and before proper medical help could be obtained he had bled to death. Now the command would pass to Beauregard — who had felt so little confidence in the attack he had tried to have it called off.

But the battle continued of its own momentum. With so much of the Union army out of the fight, the Confederates now had overwhelming superiority. And if they just could get some of it directed to the right places....

The right wing of the army initially Sherman's division, was in a bad way. After their attempt to establish a new line along the Hamburg-Purdy Road had failed, both Sherman and McClernand were pushed steadily backward, losing much of their artillery along the way. A half mile further back they finally were able to establish a line. Here they held from about 10:30 a.m. until the middle of the afternoon — though with increasing precariousness.

Now for the early hours of the afternoon it was just hard fighting. Again and again Confederate troops were hurled at the Hornet's Nest, only to be stopped short of their goal by the massed infantry and artillery fire. Here the Federals had not only the protection of the shallow sunken road and the shelter of the trees and bushes, but also a clear field of fire to their front for hundreds of yards. Bragg, who was urging on the charges here, made no attempt at other solutions. It was always the same frontal attack — with the same bloody, unsuccessful ending. It was here that the Union troops began to even the score for the horrendous casualties they had taken all morning.

With so many weak spots to strike, the attention of the Confederate leaders seems to have been hypnotized by this one Union strong point. In vain did brigade and regimental commanders beg for artillery support or an attempt to take the position from the flank. Back they were sent across the open field to add to the carpet of bodies being laid down there.

Eventually a kind of sanity had to prevail. All available artillery batteries were ordered to the area. Also infantry attacks on the flanks began to erode the Hornets' Nest from the two ends. Soon Sherman and McClernand's men on the right of the area were being forced back.

McArthur's brigade, serving as a slim bridge joining the Hornets' Nest to Stuart's men on the extreme left flank, began to fall apart and retreated at 1:30 p.m. Therefore Hurlbut's troops on the left end of the Hornets' Nest were forced to recess their flank. Stuart, now isolated far out to the left, could do nothing but salvage as many men as he could and take them back to where Grant was beginning to set up a final line near the Landing. With still no sign of reinforcements from either Lew Wallace's or Nelson's long overdue divisions, Grant knew he would have to save the army with what he had.

Now the last act of the Hornets' Nest had finally begun. Confederate artillery had been collected from all parts of the field placed so its fire could converge on the strong point. There were 62 cannons hub-to-hub in line. For nearly an hour they directed a steady storm of shells at the Stubborn Union position. It was too much. The Union artillery not already destroyed had to be withdrawn. Then Hurlbut's troops on the left of the line began to drift back. On the other flank, Sherman's and McClernand's troops had already gone. Yet Prentiss and W.H.L. Wallace decided to stay and fight as long as they could. Then a shot felled Wallace and his men began to stream to the rear. As a last desperate move Prentiss pulled back both ends of his line. It was finally circle-the-wagons time. The remaining men were pushed into a perimeter defense.

Still they held out, knowing every minute's delay might help save the army. It was 5:00 ... then 5:30. Finally Prentiss surrendered the remaining men — about 2200. It had been a long and costly hold-out. The question was — had it held out long enough?

The Confederate leaders were confident, when the remnants from the Hornets' Nest surrendered, that a great victory had been won. All they had to do was push on little more than a mile and the Union army would be pushed into the river. But the troops were exhausted from a day of fighting. Many were still looting the camps captured earlier, and others were merely drifting rearward.

There were an ample number of men still in their depleted formations — but they did not have it in them to attack with the verve they had felt earlier in the day.

And now there were also, strangely enough, some factors favoring the North. The "final line" Grant had been establishing, and which was occupied by 5:30 or 6:00 p.m., was formed that day. It was on high ground, with a clear space behind it where reinforcements could be quickly rushed from one spot to another. Its right flank was anchored on Owl Creek (where Tilghman Branch acted as another barrier in front), and its left flank was resting on the Tennessee River, controlled by Union gunboats, with another deeply ravined creek, Dill Branch, across its front.

Grant's artillery chief had collected 52 guns to post along the line, most of them on the part of the line running west from the Tennessee River. Where the line bent back toward the north there was an especially heavy concentration of guns. And where Dill Branch flowed into the river, two Union gunboats sat with their huge 8-inch guns and hundreds of shells to pour out on any target. Finally, there was now ample infantry to support the guns. All retreating regiments had been funneled into this one area, and although there were from seven to ten thousand stragglers clustered near the river, there were far more who had stayed in the battle lines, still processing their weapons, ample ammunition, and determination to fight.

Cracking this "last ditch" defense that Grant had arranged would be no cinch. And given the excellent fields of fire and the nearly impassable terrain the Confederates must cross to get to the line, there actually was little chance the exhausted Rebel troops could overcome it in the short time before nightfall.

Nevertheless, it had to be tried. Chalmers' and Jackson's brigades were sent in on the leg extending west from the river.

Neither came even close. The artillery alone could do most of the killing, and the infantry nowhere was seriously challenged. Around to the north flank the story was the same. The Rebels were clearly too much fought out to crack that line. It would have to wait till morning.

What the Rebels didn't know was that the fate of the next day's battle was also being decided. On the right flank Lew Wallace's 7000 troops were finally filing into position. Wallace had not been told clearly which road to take, had taken the longer one that came out near Sherman's original position, and when informed that he would have to take the road along the river he had been forced to countermarch a number of miles to get to it. But he had arrived at last, with his troops ready for battle.

And now there was more good news. Buell's leading division had marched down the other side of the river and was being ferried across to bolster the Federal lines further. Most of Buell's other divisions would arrive during the night.

General Bragg and others, when memory had erased some of the day's trials, argued about the lost "golden opportunity" of that last bit of daylight. Beauregard had finally ordered the attack stopped and the troops pulled back so they could use the Federal camps for bedding down. He said they would finish the job in the morning. Despite Bragg's assertion that the attack should have continued that night, most evidence contradicts his assertions. And other witnesses testified that Bragg himself at the time, realizing his troops' and his own exhaustion, was quite happy to accede to Beauregard's order. Only much later did the "golden opportunity" argument begin to surface.

That night itself was the worst in the memory of many of the soldiers present. The thousands of dead and wounded were everywhere, and most of them had to lie where they fell, to die or suffer through the long night. To make matters far worse, later that night it began to rain heavily. Many a tired soldier merely

stood with his hat pulled low over his eyes, water pouring over his body, cursing his decision to leave a comfortable home to come find glory in this god-forsaken, waterlogged, ravine-chopped hellhole of a land.

In the morning Grant ordered all available troops to advance and recapture the Federal camps. With Buell's divisions crossing the river all night, the situation was greatly changed. The Union army now numbered 45,000., the Confederates only a little over 30,000. Beginning on the right flank the Federal line consisted of Lew Wallace's fresh division, Sherman's, McClernand's, Hurlbut's, then (all from Buell's army) Brig. Gen. Alexander Mcd. McCook's, Brig. Gen. T.L. Crittenden's, and Brig. Gen. William Nelson's.

The attack went well at first, almost the entire Confederate line having withdrawn some distance the previous night. But, disorganized as they were, the Rebel's managed to stabilize their line about 8 a.m. From then on it was steady meat-grinder warfare. Charges and countercharges were called for and dutifully delivered, each one adding scores or hundreds to the casualty lists, but with little other effect except the gradual withdrawal of the Confederate forces. Before long the Union troops were back in the same old Hornets' Nest area. Still charge and countercharge continued. Slowly the route of the battle of the previous day was repeated in reverse. Noon found the Confederates back at the Hamburg-Purdy road. By 2:30 p.m. Beauregard had faced the reality of the situation. There was no chance for a Southern victory. He might as well cut his losses and run.

There was no rout. A rear guard stayed in place near Shiloh Church until after four. Later when Sherman's troops attempted a pursuit, their advance elements were dealt a hard blow by some of Morgan's Kentucky cavalry. So finally the exhausted Confederate army was allowed to drag itself back to where it had started, at Corinth.

And so the amateur armies had marched onto the board of history and collided. The few experienced officers, the political hacks, the many novices, the competent and the incompetent, the courageous and the cowardly and the thousands of raw recruits had all come to find glory on the field of battle. What most of them had found was something far different from what they had expected — and it had little to do with glory.

Some, like Colonel Jesse Appler, could only run from the madness and cower under the bank at Pittsburg Landing. He would be sent home. Major Powell may have felt some satisfaction that his life's stubborn competence had made a difference in the outcome of history. We can't be sure, for Major Powell was killed some time during the first day. Whether Colonel Peabody, amateur only in that he trusted his own judgement over that of fools wearing generals stars, was praising God or cursing General Prentiss when he fell from his horse in the company street after his fifth wound we likewise can never know — for his fifth wound was final.

We do know that General Prentiss became something of a hero after he had made his report of the battle. He has much to say about his own actions — but absolutely nothing about his subordinate Colonel Peabody's. One might deduce from this that, since history must come from live sources, it is of considerable advantage to one's military reputation to emerge from a battle alive (though captured) than heroically dead. But perhaps Colonel Appler was thinking along those lines when he headed for Pittsburg Landing.

We do know that many of these bumbling, bungling leaders would eventually become very professional at the game they had chosen to play — no matter how amateurish their start. Grant, for example, would command all the Union armies and serve two terms as President. But many of the 10,000 Confederate and 13,000 Union casualties would retain their amateur standing in perpetuity — battle often tending to shorten drastically the learning career for some. ■

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CREDITS

Game Design
Chuck Kroegel

Game Programming
David Landrey & Brian Hermundstad

Game Development
**Chuck Kroegel, David Landrey
& Joel Billings**

Rules
Victor Penman

Title Page
Tom Wahl

Computer Graphics
Keith Brors and Chuck Kroegel
Customized Disk Operating System (Apple version)
Roland Gustafsson

Playtesters
**Jeff Johnson, James Kucera, Dick Vohlers,
Victor Penman, George MacDonald,
& Cyrus Harris**

Art & Graphic Design
**Louis Hsu Saekow, Cynthia Lee Weems,
Meg Pelta & Ben Willemsen**

Typesetting
Abra Type and Louis Saekow

Printing
A&a Printers and Lithographers

IBM Version
Ed Haar



FATIGUE TABLE

ACTION	COST
Fire and Melee Combat	
Infantry and Cavalry	+3
Artillery	+8
Enter clear terrain/ peach orchard	+1
Enter light woods	+1
Enter heavy woods	+2
Enter swamp	+1
Enter ravine	+2
Enter ford/stream/bridge	+1
Enter road-to-road square	+0 or +1 (randomly dependent on efficiency)
Fortify	+15
Per 1 operation point of double-time	+6

EFFICIENCY TABLE

ACTION	COST
Unit moved onto by routing unit	-8
Leader killed in unit	-5
Unit stacked with unit that routs	-15
Unit retreats	-3
Unit causes retreat	+2
Per casualties of 5 men	-1*

* A unit with more than 600 men suffers proportionately less efficiency loss. A unit with 900 men would lose 67% less and a unit with 1200 men would lose 50% less efficiency.

MELEE RESULTS

The attacker's modified strength is divided by the defender's modified strength to determine the odds which govern the losses and retreats from melee. The odds of 2 to 1 are considered the break-even point. The defender or attacker (not both) may retreat according to the chart below. The defender is checked first and then the attacker (provided the defender does not retreat).

ODDS	% CHANCE ATTACKER RETREAT	% CHANCE DEFENDER RETREAT
<0.3	60	10
0.3 to 0.49	50	20
0.5 to 0.99	40	30
1.0 to 1.99	30	40
2.0 to 2.99	20	50
3.0 to 3.99	0	60
4.0 to 4.99	0	70
5+	0	80

RALLY

Generally speaking, the higher the morale and command control a unit has, the greater its chances to rally. See chart below for examples of percentages to rally. (NOTE: A unit which begins the game with an EFFICIENCY of less than 40 will never rally.)

COMMAND CONTROL	M O R A L E			
	31	40	60	80
.5	42%	47%	59%	71%
.6	43%	48%	60%	72%
.7	44%	49%	61%	73%
.8	45%	50%	62%	74%
.9	46%	51%	63%	75%
1.0	47%	52%	64%	76%
1.1	48%	53%	65%	77%
1.2	49%	54%	66%	78%
1.3	50%	55%	67%	79%
1.4	51%	56%	68%	80%
1.5	52%	57%	69%	81%

DISRUPTION TABLE

A unit has a chance of being disrupted based on the number of men in the unit and its number of casualties. The chart below gives some examples:

MEN IN UNIT	NO CHANCE OF DISRUPTION	CHANCE WITH 20 LOSSES	CHANCE WITH 40 LOSSES	CHANCE WITH 60 LOSSES	CHANCE WITH 80 LOSSES	CHANCE WITH 100 LOSSES	CHANCE WITH 120 LOSSES
500	less than 7 losses	11%	27%	42%	58%	73%	100%
1000	less than 15 losses	6	21	37	53	68	100
1500	less than 19 losses	1	17	32	48	63	100
2000	less than 26 losses	0	12	27	43	58	100

DISRUPTION RECOVERY TABLE

Recovery from disruption is based on command control and whether or not a unit is in an enemy ZOC.

COMMAND CONTROL	NO ENEMY ZOC	IN ENEMY ZOC
.5	35%	17%
.6	40%	20%
.7	45%	22%
.8	50%	25%
.9	55%	27%
1.0	60%	30%
1.1	65%	32%
1.2	70%	35%
1.3	75%	37%
1.4	80%	40%
1.5	85%	42%

WEAPON/RANGE CASUALTY TABLE

WEAPON TYPE	ABBREV.	RANGE IN SQUARES					
		1	2	3	4-6	7-10	11-15
Musket	MSK	3	0	0	0	0	0
Rifle	RFL	4	2	0	0	0	0
Rifle/Musket	R/M	3	1	0	0	0	0
Rifle/ Henry Repeater	R/H	5	2	0	0	0	0
Rifles/Carbines	R/C	4	1	0	0	0	0
Carbines	CRB	4	1	0	0	0	0
Shotgun	SHG	4	0	0	0	0	0
Pistol	P10	2	0	0	0	2	1
12 lb. Napoleons	NAP	14	4	2	1	0	0
10 lb. Parrott	P1	8	5	4	2	1	0
12 lb. Howitzer	H12	16	2	2	1	0	0
6 lb. Smooth Bore	SM6	8	2	2	1	0	0
James Rifle	JRG	8	5	4	2	1	0
Siege Gun	S24	18	6	4	2	2	1
32 lb. Smooth Bore 8 in. Dahlgren	NG8	20	3	1	1	1	1

The number under the range column corresponding to the proper weapon type is the number of men suffered as casualties per 100 men firing for small arms (the top two on the list) and per one gun for the artillery. The casualties derived here are further modified by various strength/casualty values.



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